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ABSTRACT

This compilation presents abstracts of research completed in the areas of health, physical education, recreation, dance and allied fields during the 1991-92 school year. The book is organized into two sections. In the first, "Index to Abstracts," references are arranged under subject headings in alphabetical order. The second, "Theses Abstracts," consists of master's and doctoral theses from institutions offering graduate programs in health, physical education, recreation, dance, and allied areas. Most references are accompanied by abstracts of the research, and all are arranged alphabetically by author's last name, under each institution. The institutions are arranged alphabetically by name. The institutional representative is indicated, and all institutions reporting are listed by state. The publication also includes a list of abbreviations used in the abstracts and a listing of the names of reporting institutions. (LL)

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COMPLETED RESEARCH IN HEALTH, PHYSICAL EDUCATION, RECREATION AND DANCE

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VOLUME 34 - 1992 EDITION

COMPLETED RESEARCH

IN HEALTH, PHYSICAL EDUCATION, RECREATION AND DANCE

Edited by SCOTT E. FRAZIER

RESEARCH CONSORTIUM of the
AMERICAN ALLIANCE FOR HEALTH,
PHYSICAL EDUCATION, RECREATION AND DANCE

The American Alliance for Health, Physical Education, Recreation and Dance is an educational organization designed to support, encourage, and provide assistance to member groups and their personnel nationwide as they initiate, develop, and conduct programs in health, leisure, and movement-related activities. The Alliance seeks to:

- Encourage, guide, and support professional growth and development in health, leisure, and movement-related programs based on individual needs, interests, and capabilities.
- Communicate the importance of health, leisure, and movement-related activities as they contribute to human well-being.
- Encourage and facilitate research which will enrich health, leisure, and movement-related activities and to disseminate the findings to professionals and the public.
- Develop and evaluate standards and guidelines for personnel and programs in health, leisure, and movement-related activities.
- Coordinate and administer a planned program of professional, public, and government relations that will improve education in areas of health, leisure, and movement-related activities.
- Conduct other activities for the public benefit.

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INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, dance, and allied areas as reported during the 1991-92 school year. It is arranged in two parts:

Index to Abstracts. In this section, references are arranged under subject headings in alphabetical order. The numbers following each topic correspond to the number of the completed research abstract (not the page).

Theses Abstracts. These are master's and doctoral theses from institutions offering graduate programs in health, physical education, recreation, dance, and allied areas. Most references are accompanied by abstracts of the research. They are arranged alphabetically by author's last name, under each institution. The institutions are arranged alphabetically by name, and the institutional representative is indicated, when this information was supplied. All institutions reporting are listed by state, beginning on page viii.

Universities and colleges are encouraged to submit abstracts of theses completed at their institution for inclusion in the next issue of Completed Research. For information about the preparation of listings, call the editor, Scott E. Frazier, at 715-346-2039. Material should be sent to:

Scott E. Frazier, Editor, CRHPERD
School of Physical Education, Recreation, and Athletics
University of Wisconsin-Stevens Point
Stevens Point, WI 54481

ABBREVIATIONS USED IN THESE ABSTRACTS

(Abbreviations are used for both singular and plural forms of the word; some are used for both noun and verb forms)

acd	= academic
AD	= athletic director
admin	= administer, administration, administrator
ALT-PE	= Academic Learning Time - Physical Education
anal	= analysis, analyze
ANCOVA	= analysis of covariance
ANOVA	= analysis of variance
approx	= approximately
assoc	= association or associated
ATPase	= adenosine triphosphate
ave	= average
bf	= body fat
BP	= blood pressure
bw	= body weight
C	= centigrade, Celcius
CO_2	= carbon dioxide
coll	= college
curr	= curriculum
CV	= cardiovascular
DBP	= diastolic blood pressure
°	= degree
devel	= develop, development
diff	= difference
DV	= dependent variable
educ	= education
EKG	= electrocardiogram
ele	= elementary
EMG	= electromyogram
EMR	= educable mentally retarded
exp	= experiment, experimental
F	= female
gm	= gram
gp	= group
grad	= graduate

HE	= health education
HR	= heart rate
HS	= high school
ht	= height
IQ	= intelligence quotient
IV	= independent variable
kg	= kilogram
kg/m	= kilogram per meter
lit	= literature
M	= male
MANOVA	= mean analysis of variance
max	= maximum or maximal
meas	= measure, measurement
mpg	= miles per hour
msec	= millisecond
mvmt	= movement
no.	= number
O_2	= oxygen
%	= percent
p	= probability ($p<.05$ = significance greater than .05 level)
PE	= physical education
pos	= positive
PR	= pulse rate
prog	= program
PWC_{170}	= physical work capacity (HR specified)
r	= correlation
rep	= repetition
ROM	= range of motion
RPE	= rate of perceived exertion
rpm	= revolutions per minute
RT	= reaction time
S	= subject, S's = subject's (possessive); Ss = subjects (plural)
SBP	= systolic blood pressure
sched	= schedule
sig	= significant or significance
sq	= square
stdnt	= student

t	= t-ratio
tchr	= teacher
univ	= university
US	= United States
VE	= variable error
V_E	= expired ventilation
VO_2	= oxygen consumption
vol	= volume
wt	= weight
x	= times
x^2	= chi square

NOTE:

1. Measurements are abbreviated (without periods), e.g.:
   sec = second; min = minute; hr = hour;
   m = meter; ml = milliliter; mm = millimeter;
   wk = week; mo = month; yr = year;
   yd =-yard; oz = ounce; lb = pound
   exception: in. = inch

2. Abbreviate all familiar organizations, e.g.:
   AAHPERD = American Alliance for Health, Physical Education, Recreation and Dance
   NCAA = National Collegiate Athletic Union
   ACSM = American College of Sports Medicine

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22

ARIZONA STATE UNIVERSITY **(P.E. MARTIN)**
TEMPE, ARIZONA

1. BLILIE, J.R. Effects on performance of branched-chain amino acid supplementation during sustained cycling exercise. MS in Exercise Science, 1992, 70 pp. (J. Skinner)

The influence of a branched-chain amino acid (BCAA) supplement and prolonged submax cycling exercise on plasma concentrations of certain free amino acids, branched-chain keto acids, pyruvate, lactate, and glucose was examined in trained cyclists. 9 M cycled at 65% ± 10% of VO_{2max} for 2 hrs or until exhaustion on 2 occasions after 21 days of ingestion of a mixture of either a BCAA supplement or a placebo. During the 2 exercise bouts, blood was drawn before exercise, at the onset, and each 20 min during exercise. Physiological meas of VO_2, HR, perceived exertion, ventilation, and respiratory gas exchange were also taken. Although the supplement almost doubled BCAA plasma levels, there were no sig diff for any of the other plasma or physiological measures. When time to exercise termination was compared, there was no diff with or without the supplement. This study suggests that BCAA supplementation does not affect performance or any of the physiologic or biochemical meas studied during 2 hours of cycling by trained cyclists.

2. DAVIS, C.M. The relationship between knowledge and expertise in breaststroke swimming. MS in Exercise Science and Physical Education, 1991, 167 pp.

This study consisted of 3 parts: 1) designing a checklist to act as a standard for knowledge of breaststroke swimming, 2) testing coll experts for comparison, and 3) testing age gp swimmers using the final checklist. Part 1 Ss included 2 coll swimming coaches, 1 former All-American swimmer, and 1 former Olympic coach. After using the Delphi technique, 85 variables were recorded as the checklist. Part 2 used 4 coll swimmers (2 M and 2 F) who were All-American caliber. These swimmers were questioned about all aspects of breaststroke swimming. Their responses were ranked technical, verbal, and demonstrated as well as spontaneous, generally probed, and specifically probed. Part 3 consisted of 22 age gp expert swimmers ages 8-18. These Ss' responses were ranked in the same way as the coll Ss' responses. Gender and rank were not sig factors. Younger experts knew less and tended to use less verbal and technical responses. Distance was an important factor for the number of correct vs wrong answers and the number of technical responses with 200-yard swimmers exceeding 100-yard swimmers.

BALL STATE UNIVERSITY
MUNCIE, INDIANA

3. BLAIR, T.B. Determining the relationship between individual events and the turnaround of the National Basketball Association. MA, 1992. (M. Gray)

Determining the factors responsible for the turnaround of the National Basketball Association (NBA) was the purpose of this study. The dramatic resurgence of the NBA was a topic of discussion and speculation over the past decade due to the unparalleled success generated by the league. 2 hypotheses were advanced for the resolution of this problem. Hypothesis I: The league's own actions were supplemented by the appeal of individual players, namely Magic Johnson and Larry Bird, and subsequently augmented by other athletes. Hypothesis II: The NBA needed the guidance of new, energetic, and aggressive leadership, namely David Stern, in order to institute necessary changes to halt the league's pitfall. Based on research acquired through periodicals, books, and information provided by the NBA Commissioner's office, both hypotheses were validated. The 2 distinct hypotheses were found to produce a cumulative, intertwining effect that precipitated the turnaround. The appealing nature of Magic Johnson and Larry Bird, plus additional marquee players, and the actions taken by David Stern in the NBA office to end labor and drug problems were the primary contributors to the NBA's resurgence.

4. BOSSUNG, L.L. Actual fitness and perceived fitness relationships. MA, 1991. (G. Gehlsen)

Purposes were to determine the health-related fitness level of 9th grade general PE stdnts at Delta HS and to determine the relationships between actual fitness and perceived fitness in the same gp. 60 M and 46 F were the Ss. Data were gathered using the AAHPERD Physical Best test (1989) and Abadie's Physical Fitness Scale (1988). A rank r was performed for actual and perceived overall fitness and for each individual fitness component. For the M, there were sig (.05 level) r between actual and perceived fitness for: 1) cardiovascular endurance (r=-0.434); 2) body composition (r=-0.396); 3) muscular strength (r=0.381); and 4) overall fitness (r=0.478). For the F, r were sig (.05 level) for: 1) cardiovascular endurance (r=-0.487); 2) muscular strength (r=0.408); and 3) overall fitness (r=0.443).

5. BRAMBRINK, J.K. Glucose tolerance and insulin sensitivity following exercise: Influence of muscle mass and absolute work. MS, 1992. (B. Craig)

To determine the influence of muscle mass and absolute work on glucose tolerance and insulin sensitivity following exercise, glucose and insulin responses to an oral glucose tolerance test (OGTT) were analyzed in 12 Ss at baseline and 16 to 18 hrs following 3 diff exercise trials performed on a cycle ergometer: 1)

2-legged exercise at 60% of 2-leg VO_{2max}; 2) 1-legged exercise at 60% of the 1-leg VO_{2max}; and 3) a second 1-leg trial at 60% of 1-leg VO_{2max} with work matched to the work obtained during the 2-leg trial. Each trial was preceded by 2 days of inactivity and a 3-day diet replication. Analysis of serum glucose concentrations during the postexercise OGTTs demonstrated that glucose tolerance was unaffected by either the amount of active tissue incorporated in the exercise or the amount of work completed by the active tissue. Serum insulin concentrations following the 2-leg trial decreased 23.5% from 347.62±37.98 to 266.05±41.62 m μ/ml in comparison to the 1-leg trial ($p<0.05$). The incorporation of a smaller muscle mass which completed an equal amount of absolute work as the larger muscle mass (i.e., 1-leg work matched trial) resulted in a large (19%), but nonsig reduction in the total insulin compared to the 1-leg relative work trial. In addition, total insulin following the 2-leg and the 1-leg work matched trials were reduced by 19% and 14%, respectively, in comparison to baseline. However, they did not reach stat sig. The results indicate that the incorporation of a larger muscle mass during an acute bout of aerobic exercise results in a reduction in serum insulin in response to a postexercise oral glucose challenge. In addition, increasing the absolute work of a muscle mass results in similar reductions in serum insulin regardless of the amount of muscle mass involved in the exercise.

6. BUMBALOUGH, R.K. A descriptive study of the cohort characteristics of subjects in the ongoing Ball State University Heart DiseaseStudy. MA, 1991. (M.H. Whaley)

This study looked at specific physiologic characteristics and heart disease risk factors of 193 M Ss who entered the Ball State Univ Adult Fitness Prog between the yrs 1973-1975. This analysis was conducted in order that more precise inferences could be made about the results of the ongoing Ball State Heart Disease Study even though stat adjustments are available for these confounding variables. S records were retrieved from the program's database. Descriptive stat along with a r matrix was compiled to assess the relationship between selected physiologic characteristics and coronary heart disease risk factors among these M. Values for heart disease risk factors included a mean age of 39.3±9.1 yrs, mean wt of 82.8±12.3 kgs, mean body mass index of 26.5±3.9, mean % fat of 22.3±8.7%, mean SBP of 126.4±10.9 mm Hg, mean DBP of 83.3±9.7 mm Hg, mean serum cholesterol of 231.7±52.2 mg/dL, and 29.8% of the pop were smokers. Upon comparing the BSU cohort to other studies which have viewed the relationship between physical fitness and the incidence of coronary heart disease, the BSU cohort was found to have moderate levels of risk factors present at baseline. The ACLS cohort exhibited the lowest levels of risk factor levels, and the USRR cohort exhibited the highest. Through these findings more clarification can be provided about the results of the ongoing Ball State Heart Disease Study.

7. CARR, C.M. Substance abuse education with elite athletes. PhD, 1992. (K.M. Dimick)

This study addressed the efficacy of a multimodal substance abuse prevention prog with elite-level athletes. By utilizing components of substance abuse information and educ, coping skills training, and self-esteem strategies, the study examined the effect of these variables on the subsequent alcohol and drug use behaviors and attitudes of the participants. In addition, meas of self-esteem and stress were examined to determine the effect of prevention on these variables. Gender diff were examined regarding substance use behaviors and attitudes, and change score meas were utilized to observe for behavioral changes from pretest to follow-up testing. Results indicated no diff on any of the dependent meas. Utilizing a repeated meas MANOVA, no sig diff in substance use behaviors and attitudes between athletes in the treatment and control conditions were found. There were also no gender diff reported on the dependent meas. In addition, chi-square (X^2) analyses demonstrated no behavioral or attitudinal diff. A sig finding indicated that control gp Ss had more substance abuse changes (both positive and negative) than the treatment condition. The hypotheses of the study were unconfirmed as a result of the stat analyses. Limitations of the study include the small sample size (although representative of the pop), the small amount of actual reported use behaviors, and the length of the program (not sufficient time). The survey data suggest that athletes at the elite level do demonstrate alcohol and drug use behaviors that may be detrimental to their personal and professional potential.

8. CRAWFORD, E.R. Qualifications of aquatic directors at Indiana swimming pools. MA, 1991. (J. Reno)

The purpose was to review qualifications of aquatic directors at IN swimming pools in relation to professional prep and aquatic certification recommended by national agencies. Ss were 92 aquatic directors from all over IN. They were categorized by type of swimming pool setting: fitness facility, public swimming pool, private swimming pool. Data were anal using frequencies converted to %. The fitness facilities were represented by individuals who specialize in aquatics. The majority had no professional aquatic training. They were rated the highest in professional prep courses and above ave in all current aquatic certification categories. Public swimming pools were also represented by individuals who specialize in aquatics. Professional prep courses rated 2nd to the fitness facility. Public pool Ss did rate highest in a few business related courses. Current aquatic certifications were below ave. The Ss from private swimming pools tended to be less specialized and more administrative and rated the lowest in all but 2 professional prep courses. Current aquatic certifications in this category were the highest in the low level water safety courses. Results indicate opportunities for professional prep have increased since 1939. Aquatic certifications are more abundant in fitness facility settings.

9. DRENTH, B.J. The effect of rearfoot movement on the knee. MA, 1992. (G. Gehlsen)

The purpose was to determine the effect of a lateral and a medial wedge on subtalar joint mvmt, knee joint valgus/varus angles and knee Q angle alignment. The participants in the study included 3 M HS athletes (mean age 13.3 yrs). The knee Q angle of each S was assessed under 3 experimental conditions, no wedge, medial wedge, and lateral wedge. In addition, the Ss were filmed while running on a treadmill at 26.8 m/s (6.0 mph) under each of the experimental conditions. All Ss were tested wearing identical BGPRO running shoes and identical 1/4 in. medial or lateral wedges running the length of the shoe. 2 high speed Locam cameras, filming at 100 frames/sec, were used to film the posterior frontal plane mvmt of the Ss. Knee Q angle was determined from 35 mm stationary photography. The results indicated that medial and lateral wedge conditions did not sig affect a change in knee Q angle, running subtalar angle, hip angle to center of gravity, knee angle to center of gravity, the horizontal distance between knee and center of gravity, the horizontal distance between heel and center of gravity, and the distance between consecutive foot strikes between Ss.

10. FLUCKEY, J.D. The effects of progressive resistance exercises on glucose tolerance in individuals with NIDDM. MS, 1992. (B.W. Craig)

This study was conducted to determine if improvements in glucose tolerance could be demonstrated following an acute bout of progressive resistance exercises. 14 individuals, not currently wt training, were assigned to 2 gps using the guidelines established by the WHO for NIDDM and normal (CON), based on the results of a 3-hr 75 g (~1.2M) load oral glucose tolerance test (OGTT). 8 blood samples were collected during the OGTT and assayed for glucose, insulin, and C-peptide. Each S from the NIDDM (n=7) and CON (n=7) gps participated in a familiarization period, including a 1RM, with 8 different Nautilus selectorized exercise machines utilizing both the upper and lower body. A 3 set x 10 repetition exercise protocol based on the 1RM was conducted and followed 18 hours later by another OGTT. 2 day diets were replicated from the prior OGTT. ANOVA failed to demonstrate sig diff in the total responses or at any specific sampling points from pre to post protocol for glucose ($p=0.53$), C-peptide ($p=0.07$) or the C-peptide:insulin ratio ($p=0.16$) in either gp. Blood insulin levels from pre to post protocol were sig reduced ($p=0.001$) by 24% and 22% for the NIDDM and CON gps, respectively. These data suggest that a single series of progressive resistance exercises improves insulin uptake by the tissues without augmenting glucose disposal.

11. LOWERY, C.A. The effect of different colored athletic apparel on athletic performance. MA, 1992. (M. Gray)

This study examines whether there is a relationship between the color of athletic apparel (shoes) and performance in the 40-yard dash and the vertical jump. Self-perception theory (Bem 1972) predicts that if athletes perceive that one shoe color is better than the others, they should perform better in that color. The study used 10 M HS football players taking part in an off-season conditioning prog. Ss were tested in the 40-yard dash and vertical jump, in 3 diff pairs of shoes. The shoes used were identical in all respects except for color. The data showed that there was no sig diff between the 3 color conditions, in either the 40-yard dash test or the vertical jump task. There was also no sig relationship found between indiv preference of shoe color and superior performance in the preferred color.

12. MANSER, M.D. Effects of relative frequency of concurrent visual feedback on serial skill acquisition and retention. MS, 1992. (D. Weeks)

The purpose was to determine the effect of variations in relative frequency of concurrent visual feedback (CVF) on the acquisition and retention of a serial skill. Ss (n=24) were coll-aged F with no gymnastics experience. Ss viewed a demonstration tape of a skilled gymnast performing a series of 7 gymnastics dance skills consisting of simple and complex mvmts. Following this, Ss performed the dance sequence in front of a floor to ceiling mirror for CVF on a certain percentage of acquisition trials. The percentage of trials a S received CVF depended on the gp to which the S was assigned: 100% relative frequency of CVF, 50% CVF (given on alternating trials), 50% faded CVF, or a control gp that received no CVF. All Ss participated in 3 12-trial acquisition sessions on diff days. A 2-trial short-term no-CVF retention test was administered after each acquisition session with one long-term retention test administered 72 hrs after the last acquisition session. The results indicated no sig diff in form rating scores between gps. Thus, variations in the relative frequency of CVF during acquisition did not seem to enhance or detract from acquisition or retention performance. The ability to reproduce the correct sequence was not dependent upon the variation in the frequency of CVF employed throughout acquisition trials. The presence of a sig session effect in both acquisition and retention form rating indicated that learning did occur regardless of the presence or absence of CVF.

13. MARSH, M.L. Physiological responses to submaximal exercise in a cold and neutral temperature in children. MS, 1992. (A.D. Mahon)

Physiological and thermoregulatory responses to exercise in a cold environment have been well documented in adults. However, limited information is available regarding the physiological and perceptual responses in children exercising

in a cold environment. The purpose was to compare the metabolic, cardiorespiratory, and perceptual responses of children performing submax exercise in a cold and neutral temp. 16 children (8 M, 8 F), with a mean ± SD age, ht, and wt of 11.4±0.9 yrs, 149.4±8.8 cm, and 40.0±7.2 kg, respectively, participated as Ss. Laboratory assessments occurred on 3 diff days. On the first day of testing, a graded exercise test on a cycle ergometer was administered to determine ventilatory threshold (VT) and VO_{2max} (1.21±0.18 l·min^{-1}, 1.74±0.21 l·min^{-1}, respectively). On separate days, Ss cycled in 5°C or 22°C for 30 min at an intensity corresponding to VT (103±11 W). The order of testing was counterbalanced. VO_2, HR, and RPE were assessed every 5 min; blood samples from an indwelling catheter were taken every 10 min for blood lactate (LA) determination. Data were analyzed using a repeated meas ANOVA. VO_2, V_E, HR, and LA responses were sig ($p<0.05$) higher in the cold (1.36±0.18 vs 1.14±0.18 l·min^{-1}, 35.6±5.3 vs 29.2±5.8 l·min^{-1}, 165.7±12.3 vs 155.9±12.9 bpm, and 2.18±1.18 vs 1.53±0.84 mmol·l^{-1}, respectively) (Mean±SE). RPE values tended to be higher in the cold (13.6±3.4 vs 12.6±2.9); however, the diff was not stat sig ($p>0.05$). More research is needed to determine the factors responsible for cold-induced alterations in the exercise response.

14. MARTIN, D.E. The effect of heat stress on excess postexercise oxygen consumption. MS, 1992. (L.A. Kaminsky)

To assess the effect of heat stress on excess postexercise oxygen consumption (EPOC), 7 healthy, active Ss (4 F, 3 M; 23.9±2.0 yrs of age) performed 4 trials: one control (quiet rest) and one exercise (45 min of cycling at 65% VO_{2max} workload) trial in moderate (23°C, 50% humidity) and hot (35°C, 50% humidity) environments. Oxygen consumption (VO_2), heart rate (HR), and rectal temperature (RT) were assessed, pre, during, and post control or exercise. Ss were monitored until postexercise VO_2 had returned to within ±2% of baseline. EPOC was determined by subtracting baseline VO_2 from total VO_2 during the postexercise period. During the first 15 min (acute) postexercise, a sig EPOC ($p=0.0019$) was seen in both exercise conditions over both control conditions. During the slow phase (>15 min postexercise to baseline), there was no sig diff between the hot control (HC), moderate exercise (ME), or hot exercise (HE) EPOC. Total time postexercise until baseline was achieved was 35, 44, and 51 min for HC, ME, and HE respectively. HR was sig elevated in both exercise conditions. During the acute postexercise period, HR in HE was elevated above MC, ME, and HC ($p<0.05$). RT was elevated in both exercise conditions during and postexercise. The data indicate that heat stress does not have a sig effect on the magnitude or duration of EPOC.

15. MILLS, B.D. Catastrophe model of anxiety and performance: Application to field hockey. MA, 1992. (M. Gray)

The purpose was to determine the effects of cognitive anxiety and physiological

arousal on performance on a predetermined motor task, and the application of the catastrophe model of anxiety and performance to women's field hockey. There were 6 Ss (3 in gp 1 and 3 in gp 2). Cognitive and somatic anxiety values were meas before and after a one-day competition using the Competitive State Anxiety Inventory-2. Performance was evaluated before and after the one-day competition using the motor task of shooting on goal. The data were analyzed using the ANOVA-repeated meas, and the Scheffé F-test was used to determine the sig diff among treatment conditions. It was apparent that physiological arousal and the associated somatic anxiety were not detrimental to performance on the predetermined motor task when cognitive anxiety was low. However, when cognitive anxiety was high, performance on the predetermined motor task was associated with catastrophic effects.

16. NAFTZGER, L.A. A comparative study of exercise blood pressure using the Bruce treadmill test and the 3-3-3 exercise test. MS, 1992. (L.A. Kaminsky)

The purpose was to compare the exercise BP response of Ss with a history of exercise-induced HBP between the submax 3-3-3 exercise test and a max Bruce treadmill protocol. 7 M and 4 F Ss with a mean age of 49±2 yrs were recruited. All Ss were selected based on a previous elevation of exercise diastolic BP≤10 mmHg during max exercise. The 3-3-3 test is a short, standardized treadmill test protocol that consists of one stage of treadmill walking at a 3% grade, at 3 mph, for 3 min. Ss completed the 3-3-3 test on one day and the Bruce protocol on a diff day with 24-48 hrs between tests. Test admin order was randomized and all tests were done at the same time of the morning with all BPs taken by the same technician with a mercury manometer. The increase in diastolic pressure from rest was sig lower ($p<0.004$) during the 3-3-3 protocol compared to the peak of the Bruce protocol. There were no stat diff between the change in diastolic pressure from rest to peak exercise when the 3-3-3 protocol was compared to the Bruce Stage I or when the Bruce Stage I was compared to the peak Bruce diastolic meas. The mean change in diastolic pressure from rest to peak exercise in the 3-3-3 protocol was 3.4±2.6 mmHg as compared to 9.9±2.0 mmHg for the Bruce Stage I, and 15.4±2.4 mmHg from rest to peak exercise with the peak Bruce. There were no diff in resting or standing systolic or diastolic BP values between protocols done on separate trial days. The change in systolic response from rest to peak exercise and the peak systolic pressures were sig diff ($p<0.001$) between the Bruce Stage I and peak Bruce and between the 3-3-3 and peak Bruce. There were no sig diff in the HR and rate pressure product between the third min of the 3-3-3 protocol and the third min of the Bruce Stage I. The 3-3-3 test was not able to elicit the same rise in diastolic BP as the Bruce treadmill test in this pop. This implies that submax treadmill testing may be a feasible method to screen for the presence of an exaggerated diastolic blood pressure response to exercise.

17. RUSSELL, W.D. The effects of a dissociative strategy of attention on ratings of perceived exertion during physical exercise. MS, 1992. (M. Gray)

The purpose was to compare associative and dissociative psychological strategies of attentional focus for their effects on self-report ratings of perceived exertion (RPE) and HR during endurance exercise. Trained cyclists (n=7) performed 3 60-min experimental rides on a bicycle ergometer which consisted of an association ride (attention focused on HR feedback), a dissociation ride (attention focused on responding to a cue word on a videotape), and a control condition ride in which focus of attention was not purposely manipulated. Results indicated that the deliberate application of a cognitive strategy designed to encourage an individual to associate or dissociate did not differentially affect either actual efficiency (HR) or perception of exercise intensity (RPE scores). Overall it was concluded that there was a trend for the dissociation condition to result in higher RPE scores than the association condition or control condition.

18. SCALLEN, S. An empirical examination of the zone of optimal functioning theory. MS, 1992. (D. Weeks)

This study examined Hanin's (1980) zone of optimal functioning (ZOF) theory. The purpose was to determine whether being in or out of a ZOF could be used to predict performance of 19 F and 16 M varsity coll swimmers. Determining ZOFs required a 2-part strategy. In part 1, Ss retrospectively revealed optimal anxiety using the SAI and CSAI-2 anxiety inventories. SDs from this portion of the study were used to determine the size of individual ZOFs. Each swimmer was assigned SAI, cognitive, somatic, and self-confidence ZOFs. In part 2, swimmers rated level of anxiety prior to competition. Precompetition anxiety scores were compared to individual ZOFs to determine if swimmers were within or outside their ZOFs prior to performance. A performance score of 1 was assigned to swimmers whose competition time was better than their mean time for previous competition, while a score of 0 was assigned to those swimmers whose performance time was worse than their mean time for previous competition. Tetrachoric r were computed to determine the magnitude of relationship between location about ZOF and subsequent performance score. Results indicated that being within SAI and somatic ZOFs were related to above average performance for M swimmers. A somatic-cognitive interaction was also sig for M swimmers. No sig relationships were identified for F swimmers, possibly due to questionable reliability and validity of anxiety responses for F. It was concluded that data for M swimmers support ZOF theory.

19. SHIN, D.M. The jump landing impact absorption kinematics and kinetics. MS, 1992. (G. Gehlsen)

The purpose was to determine the jump landing impact absorption kinematic and kinetic characteristics of the 4 S gps: 1) M HS athletes, 2) F HS seasonal athletes, 3) F HS year-round athletes, and 4) F coll athletes who train year-round. Ss dropped onto a force platform from a ht of 40 cm. Variables analyzed were flexibility, strength, Fz, Fy, and Fz force, free moment, range of motion (ROM), contact and maximum angles, time to maximum angle, contact and max angular velocities, and time to max angular velocity. Sig diff among S gps were determined through use of a factorial ANOVA and Scheffé post hoc test. A diff was noted in the landing patterns of M and F. M Ss exhibited a sig longer time to first vertical peak force. This longer time may allow for greater initial force attenuation; however, the M athletes had a sig greater second peak force. M also differed sig from F in anteroposterior and mediolateral force. The diff in method of force attenuation may be due to sig greater ankle eversion shown by the M and greater knee flexion used by the F. Additionally, the M had sig greater leg strength, which may have allowed them to increase the time to first peak. The year-round F HS athletes were found to use the best biomechanical landing method. They had a greater ROM in the knee and ankle and subsequently produced the lowest amount of vertical and anterioposterior force.

20. TANAKA, H. Dry-land strength training for competitive swimming: Interaction between strength training and swim training. MS, 1992. (D.L. Costill)

In an attempt to determine the value of dry-land weight training on swimming performance, 2 gps of 24 intercoll M swimmers were equated based on preswimming performance, swim power values, stroke specialties, and coll swimming experience. At the start of a swimming season there were no sig diff ($p>0.05$) between the swim training gp (SWIM, n=12) and the combined wt and swim training gp (COMBO, n=12). Throughout the 13 wks of their competitive swimming season, both SWIM and COMBO swam together 6 days a wk. In addition, the COMBO engaged in a wt training prog 3 days a wk between the 3rd and 11th wks (for 8 wks) of the season. The wt training prog, using free wts, was intended to simulate arm actions and muscle actions similar to those used during front crawl swimming. Both COMBO and SWIM gps had sig but similar power gains ($p<0.05$) as meas on the biokinetic swim bench and during a tethered swim. Swimmers in both gps experienced a sig ($p<0.05$) increase in competitive swim performance from 1991 to 1992 (0.89±0.60% in COMBO and 0.87±0.40% in SWIM) whereas no change in distance per stroke ($p>0.05$) was observed throughout the course of this investigation. Mean total testosterone levels were not altered during the wt training period in either gp. No sig ($p>0.05$) diff were found between the gps in any of the swim power and swimming performance tests. In this investigation, dry-land weight training did not improve swimming performance despite the fact that the COMBO was

able to increase the weights used during strength training by 25 to 35%. The lack of positive transfer between dry-land strength gains and swimming propulsive force may be due to the specificity of training.

21. URTEL, M.G. The effects of course frequency on attitudes toward physical education of college students enrolled in a physical education unit. MS, 1992. (M. Buck)

The purpose was to determine the effects of course frequency on attitudes of coll stdnts toward PE. A secondary purpose was to establish the effects of fitness level on attitudes toward PE. Also, the interaction of course frequency and fitness level on attitudes toward PE was to be identified. Stdnts enrolled for PEG 124 (n=97) served as Ss. There were 68 M Ss and 29 F Ss. The 3 times a wk course frequency had 42 Ss, and the 2 times a wk course frequency had 55 Ss. Ss completed an adaptation of Adam's (1962) survey on attitudes toward PE the first wk of class and the last wk of class. To estimate each S's fitness level, the Rockport Institute's one-mile walk test was administered. A 2x3x2 ANOVA was used to analyze the data. Results indicated that course frequency, as well as fitness level, had no sig effect on attitudes toward PE. Moreover, the interaction between course frequency and fitness level was nonexistent. Further analysis did reveal that there was a sig change in attitudes from the pretest attitude survey to the posttest attitude survey for the entire sample, However, this change could not be attributed to any of the variables that were analyzed. There also was no stat sig diff in attitudes toward PE between M and F.

22. WIDRICK, J.J. Carbohydrate feedings and exercise performance: Influence of muscle glycogen availability. PhD, 1992. (D.L. Costill)

To determine whether pre-exercise muscle glycogen levels influence the ergogenic benefits derived from carbohydrate (CHO) feedings during exercise, 8 experienced cyclists completed 4 1680 kJ isokinetic cycling trials as quickly as possible. Trials were conducted under the following pre-exercise muscle glycogen (vastus lateralis) and feeding conditions: 1) high glycogen (180.2±9.7 mmol·kg ww^{-1}) with CHO feedings during exercise (HG-CHO trial), 2) high glycogen (170.2±10.4 mmol·kg ww^{-1}) with placebo feedings during exercise (HG-PLA trial), 3) low glycogen (99.8±6.0 mmol·kg ww^{-1}) with CHO feedings during exercise (LG-CHO trial), and 4) low glycogen (109.7±5.3 mmol·kg ww^{-1}) with placebo feedings during exercise (LG-PLA trial). The placebo feedings contained no CHO. The CHO feedings provided 116±6 g CHO·$trial^{-1}$ and prevented the fall in serum glucose that occurred during both placebo trials. Performance times for the HG-CHO, HG-PLA, LG-CHO, and LG-PLA trials averaged 117.18±1.44, 118.67±1.84, 121.18±1.88 ($p<0.05$ vs HG-CHO), and 122.91±2.46 ($p<0.05$ vs HG-CHO, HG-PLA) min, respectively. There were no between trial diff in relative VO_2 (75±2% of VO_{2max}) or self-selected pace

(8.42±0.14 min·120 kJ^{-1}) during the initial 1200 kJ of exercise. During the remaining 480 kJ, pace was similar under the HG-CHO, HG-PLA, and LG-CHO conditions (8.59±0.14 min·120 kJ^{-1}) but was sig slower over the final 240 kJ of the LG-PLA trial (9.67±0.43 min·120 kJ^{-1}). In conclusion, when pre-exercise muscle glycogen levels were low, CHO feedings enabled subjects to maintain their optimal pace throughout the exercise bout, but when pre-exercise glycogen levels were elevated, CHO feedings provided no ergogenic benefit.

23. WILSON, J.E. An analysis of visual reaction time, dynamic reaction activity, and depth perception of males wearing colored eye shields. MA, 1991. (G. Gehlsen)

The purpose was to determine the effects of wearing colored eye shields on visual reaction time, dynamic reaction activity, and depth perception. The Ss were 20 M coll football players. The Lafayette's 63035 Visual Choice Reaction Time, the Bassin Anticipation Timer 50575, and the Lafayette 1702 (14012) Depth Perception Apparatus were used to collect the data. Interpretation of the data was completed with the aid of Stat Package for the Social Sciences (SPSS) computer prog. An ANOVA test with repeated meas was used for the stat analysis. Based on the findings, no sig change in reaction time, dynamic reaction activity, and depth perception were found due to colored eye shields. However, sig diff in reaction time and dynamic reaction activity were noted with day to day variation.

24. WRIGHT, C. Male and female coach-player interaction. MA, 1992. (M. Gray)

The purpose was to compare M and F coach-player interaction on an interpersonal level. A secondary purpose was to identify gender diff in coach-player interaction of F athletes. Coach-player interaction was measured by the Medford Coach-Player Interaction Inventory (Thorpe & Medford, 1986). Ss were head coaches and team members of 6 Div I women's basketball teams: 3 teams with M head coaches and 3 teams with F head coaches. State origin of participating teams were: OH, 3; MI, 1; IL, 1; and VA, 1. The total number of participating athletes was 73. In the first t-test, intercoll teams coached by F were compared with those coached by M. Results indicated a more positive coach-player interaction on intercoll F coached teams. In the second t-test, the intercoll F coached gp compared the athletes with the same gender HS coach to the Ss with opposite gender HS coach. Results indicated a more positive coach-player interaction on intercoll F coach teams and athletes with the same gender HS coach.

CALIFORNIA STATE UNIVERSITY, LONG BEACH
LONG BEACH, CALIFORNIA

25. McANDREWS, M.R. Developmental and situational factors affecting Little League participation. MA, 1991.

This research sought to answer the question of whether there was a diff between the Little League Tee Ball experience of 6 and 7 yr-olds and the Minor B experience of 8 and 9 yr-olds. Parents' perceptions of (a) fun, (b) skills, (c) affiliation, and (d) self-esteem were measured by a questionnaire. It was hypothesized that changes in developmental personality (physical, social, and emotional) and situational (adult volunteers and league structure) factors would affect children's Little League experiences. A second hypothesis stated that Tee Ball is a more rewarding experience than Minor B ball. Analysis indicated sig diff in favor of Tee Ball for all four dependent variables. This study suggests that Tee Ball is more rewarding with respect to fun, skills, affiliation, and self-esteem than Minor B ball.

26. MOSCOV, J.G. Static range of motion, leg power, and leg strength as predictors of dynamic range of motion in female ballet dancers. MA, 1992.

The purpose was to determine the relationship between dynamic range of motion (DROM), static range of motion (SROM), leg strength, and leg power in beginning, intermediate, and advanced F ballet dancers during the performance of the grand jeté. F ballet dancers (N=24) were meas for all variables during a single testing session. The total variability for DROM predicted by these variables was R^2=.4731, leaving 53% of the variability in DROM unaccounted for. Based on the present findings, leg strength was unrelated to DROM, while both leg power and SROM were only moderately related. The contribution of other factors to the remaining variability in DROM is addressed. It is recommended that further research be directed at understanding the neuromuscular mechanisms responsible for changes in DROM.

27. SHIMAKAWA, T. Effects of visual training on visual pursuit, catching, and attentiveness: A case study. MA, 1992.

The purpose was to determine whether a visual training prog would enhance the ability of visual pursuit, catching skills, and attentiveness in a child with Attention Deficit Hyperactivity Disorder (ADHD). A second question was whether amelioration in attentiveness would be related to improvements in visual pursuit. Both experimental and control Ss received a series of visual and gross motor testing. Attentiveness during testing was recorded. A questionnaire regarding attention was used for descriptive information. The experimental Ss received a 4-wk visual training. This study resulted in an effective use of visual training for improving visual pursuit and catching skills in a child with ADHD.

The results indicated that individualized instruction assisted the Ss to maintain the attention while performing the tasks.

28. SHIMIDZU, L.K. The effect of seven weeks of training on the dietary intake and skinfolds of a woman 82 years of age. MA, 1991.

The purpose was to investigate the effects of 7 wks of training on the dietary intake and body comp of an 82-yr-old woman. The S trained an average of 28.9 min, 4.71 days per wk on a bicycle ergometer. The torque force progressed from .25 to 1.0 kgs which produced work rates from 18.46 to 51.67 watts. The HRs ranged from 105 to 142 BPM. The body comp meas taken were skinfold meas and body wt which determined % fat, body density, and lean body wt, and the dietary intake changes were determined from a dietary analyisis during 4 testing periods. The results indicated a sig gain in bw (1.394 kgs), a sig decrease in the triceps skinfold but no sig diff in the thigh or suprailium skinfolds and no sig diff in any dietary intake meas.

29. THOMAS, P.R. The effect of precompetitive workouts on the activation and mood of high school football players. MA, 1991.

This study investigated the effect of precompetitive workouts on the mood and activation of HS football players. 34 members of a HS football team were administered a mild 20 min, simulated game workout approx 3 hrs before kickoff in 4 of 8 scheduled contests. Just prior to competition, the athletes completed an adjective checklist which was used to subjectively meas activation and mood. The stat analysis indicated that the exercise condition had a sig effect on the activation and mood of the athletes. The effect on the athlete was an increase in the Deactivation and the lowering of Activation levels. It was concluded that precompetitive workouts can influence the mood and activation levels of young HS football players. Furthermore, game day mild exercise can be an effective tool to assist coaches in preparing athletes for competition.

30. WOERFEL, L.A. The effects of gender on ALT-PE (Motor) in junior high physical education. MA, 1991.

The purpose was to determine what effect the gender of tchrs and stdnts has on the levels of Academic Learning Time-Physical Education (Motor) in junior high PE. 6 PE tchrs (3 M and 3 F) were each videotaped teaching 3 classes: one all-M class, one all-F class, and one coeducational class. A total of 18 classes were videotaped teaching a 20-min experimental teaching unit. A computerized version of the ALT-PE Teacher Behavior observation coding instrument was used to meas tchr and stdnt behavior. Findings showed no sig diff in the mean % of ALT-PE (Motor) for classes taught by M and F tchrs nor for each of the 3 gender gp classes. Gender did not seem to have an effect on the levels of ALT-PE (Motor) in this study.

31. YOUNG, M.J. Functional motor skills and the developmentally disabled. 1991.

The purpose was to compare the effectiveness of 2 prog of adapted PE in improving functional motor skill attainment of children who are moderately developmentally disabled. 13 children (10 M and 3 F) between the ages of 6 and 12 yrs were randomly assigned to one of two experimental gps, either a traditional adapted PE prog or a functional motor skills adapted PE prog. Each stdnt completed a pretest and posttest that required the stdnt to perform 8 functional motor tasks. A 2x2 (gp x test) mixed design was utilized and ANOVA used to test mean diff. A sig interaction was obtained ($F[1,6]=69.03$, $p<.05$). Follow-up tests indicated that the stdnts in the traditional adapted PE prog did not improve while the stdnts in the functional motor skills prog did improve.

COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO

32. FEE, L.L. Cardiorespiratory responses to increased expiratory resistance during exercise. MSc in Exercise and Sport Science, 1991.

Pursed lip breathing (PLB) improves SaO_2 in COPD patients. However, little is known about the cardiorespiratory responses to increased expiratory resistance during exercise in healthy Ss. To determine these responses, 9 healthy M endurance athletes, ages 19 to 34, performed 3 max VO_{2max} treadmill tests with 3 diff expiratory orifice diameters: 2.86, 2.22, and 1.90 cm. During testing, orifices were presented in a double-blind fashion and in a predetermined order. Testing took place at a local elevation of 1520 m (P_{Bar}=635 mm Hg). SaO_2, RER, V_E, tidal vol, HR, VO_2 l·min^{-1}, VCO_2 l·min^{-1}, F_EO_2, F_ECO_2, and breathing rate were recorded every 60 sec. With the 2.22 cm orifice, SaO_2 was sig ($p\leq0.05$) greater, when compared to either the 2.86 or 1.90 cm orifice, at 40, 50, 60, 70, 80, and 90% of VO_{2max}. None of the other meas variables changed sig. The increased expiratory resistance offered by the 2.22 orifice may have increased airway pressure, forestalling preferential airway closure, i.e., the dynamic compression which accompanies progressively more active expiration, in the lower, dependent lung regions, thereby improving the ventilation-perfusion ratio. It is likely that the 1.90 cm orifice offered too great a resistance, perhaps causing expiration to end prematurely. The data suggest that increased resistance to expiration during exercise may improve SaO_2 without sig altering VO_2.

33. REYNOLDS, H. Influence of postexercise glucose ingestion on plasma potassium levels and ECG measurements. MSc in Exercise and Sport Science, 1991.

The intent was to determine whether postexercise ingestion of glucose causes hypokalemia and its associated electrocardiographic changes. 11 trained healthy M and F runners between the ages of 28 and 42 yrs were selected as Ss. Each S participated in two trials, during which baseline ECG and plasma potassium and glucose meas were taken, followed by a 90-min run. A 100-gm glucose polymer drink (Exceed®), either with or without the addition of 3 gr of potassium chloride, was ingested by the Ss in a single-blind random fashion within 15 min of the cessation of exercise. ECG parameters and plasma potassium and glucose concentrations were again meas immediately and at 25 and 60 min following the cessation of exercise. The results indicated that plasma potassium concentrations dropped immediately postexercise and that there was a sig ($p \leq .05$) diff in plasma potassium levels at 60 min postexercise between the two drinks. The addition of potassium chloride to Exceed® caused plasma potassium levels to rise well above the mean baseline value, while with Exceed® alone, the plasma potassium levels did not increase or return to baseline levels. There were no sig ($p > .05$) diff in plasma glucose levels between the 2 drinks as well as no sig diff in hematocrit and HR. Sig ($p \leq .05$) ST segment depression was demonstrated in Lead I of the ECG following ingestion of Exceed®. Ingestion of Exceed® alone caused T wave amplitude to be sig ($p \leq .05$) lowered in 8 leads of the ECG and caused U wave amplitude to be sig (.05) elevated in four leads. There were no sig diff ($p > .05$) in QT interval length between the two treatments. These data suggest that ingestion of glucose in the postexercise recovery period suppresses the return of potassium to the extracellular fluid from the muscle cell, and that this tendency for decreased plasma potassium concentration leads to ECG changes; specifically, sig ($p \leq .05$) diminished T wave amplitude and increased U wave amplitude. Of primary importance is the observation that the additional potassium chloride provides an adequate level of extracellular potassium to prevent ECG changes associated with rapid decrease in plasma potassium levels immediately postexercise.

INDIANA UNIVERSITY
BLOOMINGTON, INDIANA

34. BURKE, J.R. Changes in spinal excitability preceding a voluntary movement in young and old adults. PhD in Human Performance, 1991, 484 pp. (G. Kamen)

20 old adults, mean age 68.5 yrs, and 20 young adults, mean age 23.1 yrs, were tested on 4 days during a 1 wk period. On each day the S performed 84 rt plantar flexions in a simple RT paradigm. Day 1 was a practice session. On days 2, 3,

and 4, changes in spinal excitability preceding a voluntary mvmt were assessed by eliciting one of the following reflexes: unilateral rt Achilles tendon reflex, unilateral rt tibial H-reflex, or simultaneous bilateral tibial H-reflexes. Regardless of the reflex used to assess motor preparation, the duration of reflex facilitation was prolonged preceding a voluntary mvmt in the old adults. The % of Achilles tendon reflex facilitation preceding a voluntary mvmt was greater in the young adults than in the old adults without a concomitant age-related change in % of H-reflex facilitation. During the 500 ms interval prior to the presentation of the response stimulus, the amplitude of the H-reflex in the responding leg was depressed as compared to the amplitude of the H-reflex in the nonresponding leg in the young adults only. The results supported changes in motor preparation with age.

35. CLARK, J.K. Two curricular settings of a HIV education unit related to secondary school students' HIV knowledge and attitude. HSD in School and College Health Education, 1991, 92 pp. (W.L. Yarber)

The problem was to compare the effects of 2 curr settings of a HIV educ unit (HEU) upon school stdnts' attitude toward and knowledge about HIV prevention behaviors. HE and biology classes from 3 secondary schools participated (n=260) in a quasi-exp study. Exp gps in biology and HE classes received a 5-day HEU, while the control gp did not. All Ss were admin a 45-item questionnaire as a pretest, posttest, and a 4-wk delayed posttest to determine changes in the dependent variables. The change in the stdnt HIV prevention knowledge was not found to be sig. The results demonstrated that Ss in the HE classes had a sig improvement of their HIV prevention attitude, while Ss in the other 2 gps did not. The improvement in attitude occurred a short period after the completion of the HEU. Based on the findings it is concluded that the curr setting of an HEU influences secondary school stdnts' HIV attitude.

36. GRUVER, B.M. The social construction of leisure for women in academe: A grounded theory of meaning. ReD in Recreation, 1991, 135 pp. (D.R. Austin)

Event diaries and multiple collaborative interviews were the techniques used to collect data for a purposive sample of 9 women professors. Consistent with a contextual analytic framework, the event was the unit of anal. A total of 491 events were qualitatively anal in accordance with the techniques recommended by Strauss (1987) for grounded theory studies. Of the 491 total events, 205 were classified as work, 170 as leisure, and 116 as either a combination or other. The grounded theory data anal techniques included: open, axial, and selective coding; categorical construction; and theoretical memo writing. A constant comparative method of anal was the technique used to construct the substantive theory. The concept consistently used to define leisure was a priori choice. However, this concept was also used to describe autonomous work. The

distinguishing factor was job-relationship, as low job-relationship coupled with a priori choice facilitated the perception of leisure. A paradigm of leisure and work was constructed based on a perceived freedom of choice and constrained choice dichotomy, with low and high job-relationship being important factors. The paradigm depicts of model of how social conditions may facilitate the perception of a certain type of experience.

37. OGLETREE, R.J. Selected factors related to help-seeking behavior of college women victims of sexual coercion. HSD in School and College Health, 1991. (W.L. Yarber)

The problem was to compare the assertiveness, self-esteem, and sex role stereotype acceptance levels among coll women victims of sexual coercion in dating situations who engaged in help-seeking behavior after victimization, women who did not seek help, and nonvictimized women. 656 F Ss drawn from HE classes at 3 midwestern univ completed the survey instrument which collected data on assertiveness, self-esteem, sex role stereotype acceptance, and sexual coercion experience and help-seeking behavior. No diff in assertiveness and sex role stereotype acceptance were found among the 3 gps. The diff in self-esteem among gps was found to be of little practical sig. Results demonstrated that assertiveness, self-esteem, and sex role stereotype acceptance are not appropriate factors to use in studying the diff in help-seeking behavior among women who are victims of sexual coercion in dating situations.

38. OZMUN, J.C. Neuromuscular and kinesthetic adaptations following strength training of visually impaired and nonvisually impaired children. PED in Physical Education, 1990, 153 pp. (P.R. Surburg)

32 M and F Ss from the IN School for the Blind (n=16) and St. Thomas Ele School, Indianapolis, IN (n=16) participated as volunteers. Prepubertal status was determined by a physician. Nonvisually impaired (NVI) Ss were randomly assigned to a training or control gp, as were visually impaired (VI) Ss. All Ss were pretested for isokinetic strength, isotonic strength, and kinesthetic memory (mvmt reproduction) of the elbow flexors, EMG amplitude of the biceps brachii, and upper arm circumference. The exp gp trained with weights 3 times a wk for 8 wks. A posttest followed the training prog. Anal of data utilized planned comparisons for the dependent variables of muscular strength, EMG amplitude, mvmt reproduction scores, and arm anthropometrics. Stat sig findings ($p<.05$) included isokinetic and isotonic strength increases in NVI trained Ss, isotonic strength increases in VI trained Ss, and an increase in EMG amplitude following training in the NVI trained Ss. The results from this investigation indicated that such strength gains are associated with an increase in neural activity. In addition, strength training did not appear to adversely affect mvmt reproduction accuracy in either VI or NVI children.

MICHIGAN STATE UNIVERSITY
EAST LANSING, MICHIGAN

39. GARVY, B.A. Alteration of murine bone marrow B-cell development and function by physiological concentrations of glucocorticoids: A role for programmed cell death. PhD in Biochemistry and Exercise Science, 1991.

Elevated plasma glucocorticoids generated by chronic stresses were known to cause lymphopenia and thymic atrophy. What effects such steroids might have on B-cell lymphopoiesis were unknown. Data presented in this study demonstrate that physiological levels of glucocorticoids dramatically reduce the capacity of murine bone marrow to produce B-cells and that the depletion of such cells can be via induction of aptotosis. $B220^+$, IgM^+, and IgD^+ cells cultured with glucocorticoids formed a distinct peak to the left of G_0/G_1 in the hypodiploid region previously termed A_0, as determined by flow cytometric cell cycle anal. Appearance of cells in the A_0 region correlated with internucleosomal DNA fragmentation and increased cell density, characteristics of apoptosis. Glucocorticoid-induced aptotosis of B-lineage cells was found to be dose-dependent and inhibitable by the glucocorticoid receptor antagonist RU38486. Further, bone marrow $B220^+$ cells were found to have similar numbers of GC receptors as thymocytes. To determine if glucocorticoids manifested similar effects on bone marrow *in vivo*, corticosterone pellets were implanted subcutaneously which chronically elevated plasma GC analogous to the level observed during stress (30-100 μg/dl). Flow cytometric anal of bone marrow B-lineage cells at day 5 indicated a depletion of $B220^+sIgM^-$ pre-B cells and $sIgM^+sIgD^-$ immature B-cells. However, a population of $B220^{bright}IgM^+IgD^{bright}$ cells increased two-fold and responded normally to antigenic challenge. 2-color cell cycle anal indicated that the proportion of large cycling $B220^+$ cells in S phase had declined sharply. A distinct population of cells appeared in the A_0 region between 6 and 36 hrs after pellet implantation. Finally, prednisolone, a widely used anti-inflammatory glucocorticoid, caused a 3-fold reduction in bone marrow pre-B-cells when present in plasma at nanogram levels. Though the pattern of effects of prednisolone on B-lineage cells was somewhat diff from that of corticosterone, it is clearly a potent suppressor of lymphopoiesis. The data show that glucocorticoids at physiological levels have a profound effect on the development of B-cells and that these steroids can readily induce apoptosis in developing B-cells.

40. HESTER, C.L. The effect of an athlete-mentor program on student-athletes making the transition from high school to college. MA, 1990.

The study investigated the effects of an athlete-mentor intervention prog for freshmen student-athletes participating in intercoll sports on the effectiveness of their transition from HS to coll. The hypotheses were that the Ss who had a mentor would show greater adjustment to coll life than those freshmen student-

athletes who did not have a mentor, as meas by the POMS and the superior adjustment and mastery of the external world subscales of Offer's OSIQ. The Ss were 28 freshmen student-athletes at a Div I midwestern univ who were participating in men's and women's basketball, men's and women's gymnastics, men's and women's swimming, wrestling, and men's indoor track. The 8 teams were randomly assigned to either an exp gp (those receiving a mentor) or a control gp (those not receiving a mentor). Pretests and posttests were completed by the 2 gps at the beginning and end of the 5-wk intervention prog. Stat anal failed to support the hypotheses. However, trends toward the effectiveness of the prog were recorded.

41. KAWANO, R. A cross-cultural comparison of perceptions of success and failure in sport and school arenas between Japanese and American students. MA, 1992.

The present cross-cultural study was designed to replicate and extend previous research on achievement motivation by comparing the perceptions of success and failure among Japanese and US coll stdnts. A 2-step procedure which was developed by Triandis (1977) was employed. Phase 1 solicited perceptions of success and failure from both M and F stdnts in both countries to construct an antecedent and consequent questionnaire. This questionnaire was used in phase 2 to assess sex diff within culture as well as cross-cultural diff. Responses to the questionnaire were analyzed using a chi-square for diff in sport and school situations. Results revealed that gender diff within each culture and cultural diff in perceptions of antecedents and consequents of success and failure in sport and school contexts were due to child-rearing, educ, and cultural background.

42. LEUTHOLTZ, B.C. The effects of exercise training and severe caloric restriction on lean-body mass in the obese. PhD in Exercise Science, 1991.

The purpose was to investigate the effects of exercise intensity on the body comp of obese subjects during severe caloric restriction. 40 obese Ss (33 F, 7 M; 41± 7.7 yrs; 106 ± 26 kg; BF > 25% M, > 30% F) on a commercially prepared, 420 Kcal/day, supplemented fast were randomized into gps that exercised at 40% and 60% of the heart rate reserve (HRR). Training volume was similar for both gps, at approximately 300 Kcal/day, 3 days/wk for 12 wks. Body weight (BW), body fat (BF), and lean weight (LW) were similar for both exercise intensity gps at wk 1. Overall, BW decreased by 15.3 ± 6.7 kg ($p<.05$), and BF decreased by 14.9 ± 5.0 kg ($p<.05$) for the 40 Ss, while LW remained unchanged. No sig diff in BW, BF or LW were observed between the 2 gps. Gain scores follow for each gp:

Group	*BW (kg)*	*BF (kg)*	*LW (kg)*
40% (n=20)	-15.0 ± 8.4	-13.8 ± 5.2	-1.2 ± 3.8
60% (n=20)	-15.7 ±5.3	-15.9 ± 4.9	+0.20 ± 2.1

The results showed that, while on a supplemented 420-Kcal/day fast, exercise at 40% and 60% of the HRR affected body comp similarly when total training vol was held constant at 900 Kcal/wk. LW remained unchanged and accompanied a 14.9 ± 5.0 kg decrease in BF. These results suggest that exercising at 60% of the HRR offers no advantages for body comp over those exercising at 40% of HRR.

43. LIRGG, C.D. Effects of same-sex and coeducational physical education on perceptions of self-confidence and class environment. PhD, 1991.

The advent of Title IX in 1972 brought with it several important ramifications in the administration of sport and physical education. One outgrowth of Title IX was the appearance of coed PE classes. However, the effects of coed PE on stdnts' self-perceptions have not been studied. Therefore, the purpose was to investigate the effects of attending either a coed or a same-sex PE class during a basketball unit on several self-perception variables. Self-perception variables included perceived self-confidence, perceptions of the usefulness of learning basketball, perceptions of the gender-appropriateness of basketball, and perceptions of the environment. Ss were 203 middle school stdnts and 193 HS stdnts from 2 middle schools and 2 HS who participated in a 10-day basketball unit in PE class. In each school, a M teacher and a F teacher each taught 1 coed class and 1 same-sex class. Classes were designated as either coed or same-sex; stdnts in the coed classes were randomly assigned to either the M teacher or the F teacher. Results of 2x2x2 (class type x gender x grade) MANOVAs revealed that boys in coed classes perceived their classes more favorably than boys in same-sex classes. Boys in coed classes were more confident, perceived themselves to be better-behaved, more affiliative, and more involved than boys in same-sex classes. Girls generally perceived their same-sex classes more favorably, perceiving better behavior, more affiliative behavior, more teacher support, and more stdnt involvement than girls in coed classes. Given that Title IX mandates that PE be coed, the impact of this law on boys and girls should be researched more carefully to examine how class type affects stdnts not only in terms of performance, but also psychologically to identify the best PE setting for stdnts.

44. MEYER, B.B. Collegiate athletes who made the grade: Reflections of former Division I football and basketball players. PhD, 1991.

For over 100 yrs faculty committees and national organizations have been trying to reform intercollegiate sport. As an indirect result of reform mvmts, intercollegiate sport has become a popular research topic for individuals in a variety of fields. While these efforts have provided several improvements and a great deal of knowledge, they have provided little insight into the actual experiences and perceptions of, or coping strategies utilized by coll student-athletes. The purpose, therefore, was to use the information gained through in-

depth interviews with former M Division I football and basketball players to better understand how big-time intercolegiate student-athletes experience and perceive coll. I focused on the student-athletes' critical thoughts about their situation, how the M acted on their awareness, the circumscription of their efforts by the athletic department, and the dynamic nature of the student-athletes' experiences. Specifically, the M were aware of what was going on around them. The M who acted on their awareness did so by defying the dependency training espoused by the athletic department and by "mainstreaming" themselves into "normal" coll life. The efforts of the student-athletes to express agency were not always successful, however, as they were often circumscribed by the athletic department. In the end, it appeared as though the M were successful in spite of the system. While services to advance their educ were available, they were often seen by the athletes as more detrimental than beneficial. The fact that M in the sample graduated does not necessarily mean that the institutional and national athletic systems in which they operated were effective; many outside factors influenced the athletes, and thus were the primary forces behind their academic achievements.

45. PLUMMER, P.E. A comparison of athletic ankle taping techniques with respect to ankle inversion. MA in Exercise Science, 1991.

The effects of restriction on ankle motion by athletic ankle taping was studied on 20 coll football athletes. Pre-exercise and postexercise ankle inversion motion was meas bilaterally under 4 conditions (a control—no taping, closed basketweave taping, moleskin stirrup taping, and spartan slipper taping). A modified Inman ankle testing machine was used to obtain meas. The design was a one-factor randomized complete block design combined over days. Pre-exercise meas showed no sig ($p<.05$) diff between taping techniques but they were all stat more restrictive than the control. There was also an interaction between the R and L foot. Postexercise meas indicated sig ($p<.05$) diff between taping techniques. The spartan slipper was the most restrictive of the taping techniques. The moleskin stirrup and the closed basketweave taping techniques were not stat diff from each other but they were sig ($p<.05$) more restrict e than the control.

46. ROBISON, J.I. The effects of a six-month, incentive-based, worksite exercise program on adherence and work capacity. PhD in Exercise Science, 1991.

The purpose was to evaluate the effects of a behavior treatment package on adherence and dropout during a 6-mo worksite exercise prog. 137 Ss in 6 worksites on a univ campus (5 exp and 1 comparison site) completed 6 mo of a minimally supervised, incentive-based endurance exercise prog. All participants in the exp gp contracted to engage in at least 4 bouts of 30 min of verified aerobic exercise within a prescribed target HR range each wk for the duration

of the prog. $40 deposited at the beginning of the prog served as a response cost which could be lost as a result of failure to fulfill the weekly contracts. Individuals in the comparison gp participated in a similar 6-mo prog but without the contracts and response cost strategies. Weekly adherence for both gps was strictly defined as verified fulfillment of all 4 bouts of exercise. Adherence for the exp gp was 97% by this definition and adherence for the comparison gp was 19% ($p<0.01$). VO_2max increased 2.6% ($p<0.01$), and treadmill test time increased 16% ($p<.0.01$) in the exp gp after the 6-mo prog. HRs and ratings of perceived exertion at all submax workloads during treadmill exercise testing were reduced at 6 mo in the exp ($p<0.01$) gp. Recovery HR at 2 and 4 min postexercise were sig lower at 6 mo in the exp gp but not in the comparison gp. These data provide evidence that adherence to a 6-mo endurance exercise prog can be improved sig through the use of well-conceived behavior management strategies.

47. SMITH, S.D. The effects of integration in physical education on the motor performance and perceived competence characteristics of educable mentally retarded and nonhandicapped children. PhD in Human Performance, 1989. (G.M. Dummer)

The purpose was to determine the effects of integration in PE classes on the motor performance and perceived competence characteristics of educable mentally impaired (EMI) and nonhandicapped (NH) children aged 8 to 11 yrs. The 15 EMI and 45 NH children were assigned to 1 of 4 PE classes: a nonintegrated class of 8 EMI children; a nonintegrated class of 18 NH children; an integrated class of 4 EMI and 13 NH children; or an integrated class of 4 EMI and 14 NH children. Each met for 90 min per session, 4 days per wk, for 4 wks. The curr emphasized fundamental motor skills, including locomotor and object-control skills in the context of soccer and softball units. Motor skill performance was assessed prior to the beginning of instruction and at the end of the 4-wk instructional prog. The qualitative aspects of motor performance were assessed using the test of gross motor dev, and quantitative aspects of performance were assessed using the softball throw for distance, standing long jump, and 20-yd dash. Perceived competence was meas prior to instruction, during the first wk, and at the end of the 4-wk period of instruction. The Self-Perception Profile for Children (Verbal Scale) and the Pictoral Scale of Perceived Competence and Social Acceptance for Young Children were used to assess perceived competence. The Dyadic Adaptation of the Flander's Interactional Analysis System was used for assessing frequency and types of interaction between tchr and stdnts. The findings indicated that neither instructional setting provided a sig advantage in improving qualitative and quantitative motor performance of EMI and NH children. Neither setting offered an advantage in improving the perceived competence of the EMI or NH children. Tchr-stdnt interaction patterns varied with the individual teaching styles. EMI children received a greater frequency of interactions when com-

pared to the NH children in the categories of direction/order, praise, and total interactions. Diff in these categories appear to be due to the influence of the large number of interactions directed toward the nonintegrated EMI class.

48. WITTEN, W. A kinematic and kinetic analysis of the overgrip giant swing on the uneven parallel bars. PhD in Exercise Science, 1990.

This study investigated selected kinematic and kinetic variables of the overgrip giant swing on the uneven parallel bars. The Ss were 15 club gymnasts, who ranged in age from 10 to 18 yrs. 4 judges ranked the 15 overgrip giant swings. Based on the judges' rating, 3 gps were formed. Gp 1, the highly skilled, and gp 3, the lower skilled, were compared on kinematic and kinetic variables. The top rail of the bars was instrumented with strain and torque gages to meas forces and torques directly on the bar. Comparisons between the 2 gps were made on absolute and temporal occurrences of events within the skill, body segment orientations, joint angles, body segment velocities (VEL), and acceleration patterns and the path of the total body center of gravity. There were sig diff between highly skilled and less skilled gymnasts for the horizontal VEL of the total body center of mass (4.9 and 4.4 m/sec respectively) and the relative time of occurrence of the max vertical VEL of the center of mass. Sig diff were shown between the gps for peak VEL of the ankle and hip. Gp 1 had a VEL of 11.0 m/sec for the ankle and 6.2 m/sec for the hip. Gp 3 showed VEL of 9.6 and 5.6 m/sec, respectively. There were also sig diff for several segmental VEL and acceleration (feet, shank, and arm), which were due to body position changes as the gymnasts completed the descent phase of the skill. There were no sig diff between gps on the kinetic variables. The total gp m max resultant force on the bar was 3.1 times bw, which occurred in the second quadrant of the skill. The max m torque on the bar was 41.3 Nm. M elbow joint reaction forces were 1.6 times bw for the vertical force and 0.7 times bw for the horizontal force. The shoulder joint calculations were 1.6 and 1.3 times bw for the vertical and horizontal forces respectively.

NORTHEASTERN UNIVERSITY
BOSTON, MASSACHUSETTS

49. KELLY, T.S. The effects of organized sport/fitness programs on the measurable fitness levels of children age 9 to 12. MS in Cardiovascular Health and Exercise, 1990. (R. Curtin)

209 children (9-12 yrs) were given the AAHPERD Physical Best fitness test to determine their current fitness levels. The test consisted of 1-mile walk/run (R), pull-ups (P), sit-ups (S), flexibility (F), and skinfold meas (SK). Each stdnt was asked to fill out a survey form, which indicated how many sports the child

participated in and how often (seasons). The scores were compared to determine if involvement in organized prog affected fitness scores by: the no. of sports they participated in or the amount of time spent participating. Scores were collected and used in a stepwise regression anal to determine if components in the fitness test were affected. A no. of variables (sex, age, no. of sports, no. of seasons, and skinfold) were used to determine which had the greatest effect on the test scores. Results showed a r between lower SK and greater no. of sports children participated in. SK was lower in stdnts who participated in greater nos. of sports (skinfold was used as a meas of wt). This, however, accounts for a very small % of the variance (02.3%). Low SK accounted for a small % of the variance in the following test scores: R (22.5%), P (18.0%), and S (11.3%). Sex had the greatest effect on flexibility with girls shown to score higher than boys. The data suggest other variables not used in this study must affect fitness scores.

OHIO STATE UNIVERSITY
COLUMBUS, OHIO

50. BASTA, S.M. Pressure sore prevention self-efficacy and outcome expectations in the spinal cord-injured: A validity and reliability study. PhD, 1992. (M.S. Chen, Jr.)

The purposes were to (a) develop and test a paper-and-pencil tool (known as the Pressure Sore Prevention Beliefs Scale, or PSPBS) to assess spinal cord-injured persons' (SCIPs) confidence levels (or self-efficacy) in independently performing various pressure sore prevention (BSP) behaviors and the extent to which they believed that these behaviors were necessary for maintaining healthy skin (outcome expectations); (b) determine the reliability and validity of the PSPBS; and (c) examine the relationships between Ss' scores on the PSPBS and selected demographic and clinical characteristics. Bandura's self-efficacy theory was used to guide the study design, which was both methodological and descriptive/correlational. The PSPBS was tested with a convenience sample of 40 SCIPs from 7 midwestern/Great Lakes rehabilitation facilities who were within 14 days before discharge from their initial inpatient prog. Data collection occurred between June 1990 and August 1991. Internal consistency reliability estimates for the PSP Self-efficacy and Outcome Expectation subscales of the PSPBS were .899 and .878, respectively. Content validity as determined by a panel of rehabilitation clinical nurse specialists and 8 persons with long-term spinal cord injuries was found to be very satisfactory. Ss tended to be less confident in their abilities to check skin with a mirror; differentiate between a normal skin response to pressure and signs of early skin damage; avoid tobacco use; and perform transfers safely. Performance on the PSP Outcome Expectation subscale of the PSPBS was sig related to age (r_S=.506),

p<.05 and to marital status (phi=.373, $X^2(1,n=40)=5.560$, p<.05. Based on its testing in this study, the Pressure Sore Prevention Beliefs Scale was judged to be a reliabale, content valid, and suitable tool for assessing perceptions of PSP self-efficacy and outcome expectations with spinal cord-injured persons.

51. BLOOMFIELD, S.A. Site-specific changes in bone mass and alterations in calciotropic hormones with electrical stimulation exercise in individuals with chronic spinal cord injury. PhD in Physical Education, 1992. (R.D. Jackson, D.R. Lamb)

This investigation sought to determine whether the loss of bone mineral density (BMD) in spinal cord injured (SCI) individuals could be reversed with functional electrical stimulation cycle ergometry (FES-CE), which produces muscle contraction in the paralyzed legs. 9 SCI Ss (age 28.2 yr, time since injury 6.0 yr, injury level C_5-T_7) were enrolled in a 9-mo training protocol. 8 sedentary SCI control Ss were tested to quantify seasonal variation in BMD and biochemical and endocrine variables. Testing occurred at baseline and every 3 mos. In the exp gp, increases were noted in lumbar spine BMD (assessed by dual energy x-ray absorptiometry) by 9 mos; total body BMD declined slightly at 6 mos, as did Ward's triangle BMD at 9 mos. Those Ss achieving power outputs of ≤18W with FES-CE exhibited sig increases in distal femur BMD by 9 mos and appeared protected against decreased BMD at proximal tibia (6 mos) and Ward's triangle (3 and 9 mos) noted in the low power group (≤12W). Increased lumbar spine and distal femur BMD were sig (r=0.956 and 0.997, respectively) with quadriceps muscle strength (by isokinetic dynamometry). By 3 mos serum osteocalcin increased 78%, suggesting increased bone formation. There were no increases in markers of bone resorption (urine calcium, hydroxyproline). Serum PTH increased 75% by 6 mos, with several values in hyperparathyroid range. There was a sig effect of PTH status on change in BMD at distal femur, Ward's triangle, and lumbar spine. Serum insulin-like growth factor II (IGF-II), a regulator of bone remodeling, increased sig (+40%) by 9 mos. Histomorphometric anal of proximal tibia biopsies taken at baseline and 6 mos suggested an increase in bone formation activity and no change in resorptive activity in a S training at high power. 4 Ss continued training through 12 mos while ingesting 500 mg calcium supplements/d; no sig effects of calcium supplementation on any variable were detected. FES-CE training appears to be effective in increasing BMD at lumbar spine and distal femur for Ss able to achieve a threshold workload of 18W. Increases in bone formation activity, potentially mediated by increases in IGF-II, appear to account for increases in BMD.

52. COOLEY, J.L. Furosemide and exercise: The hormonal response in the horse. MA, 1990. (D. Lamb)

6 adult untrained mares were used to examine the effects of prior admin of intravenous furosemide (1 mg/kg body wt) on hormonal responses during submax exercise on a treadmill. The horses ran for 60 min up a 6% grade at approx 60% of max HR. The exp consisted of 3 trials performed in a randomized cross-over design. Trial 1 included the admin of furosemide 4 hr prior to exercise; trial 2 included furosemide 5 min before exercise; and trial 3 acted as a parallel control receiving no furosemide. Blood was drawn for the meas of plasma renin activity (PRA), aldosterone, and atrial natriuretic peptide (ANP) just prior to exercise, every 3 min during the first 15 min of exercise, and every 15 min thereafter. ANP concentration increased 30 min into exercise in trial 3; however, ANP did not change ($p>.05$) during exercise in trials 1 and 2. PRA increased in all groups by 3 min into exercise, and trials 1 and 2 were sig higher than trial 3 by 3 min into exercise. Aldosterone concentration also increased in all 3 gps during exercise, but there were no sig diff among treatments. Furosemide admin prior to submax exercise in the horse attenuates ANP concentration, enhances PRA, and does not affect aldosterone concentration.

53. CUNNINGHAM, K.M. ST segment changes due to handrail support during graded exercise treadmill testing. MA in Physical Education, 1992. (T.E. Kirby)

To evaluate the influence of the isometric work of handrail support (HRS) during a dynamic graded exercise test (GXT), the responses of 10 M Ss with diagnosed coronary artery disease with ischemia and ST segment depression of >1.0 mm were evaluated. Each S performed 2 peak GXTs, one without HRS (Test 1) and one with HRS as desired (Test 2). Each S also completed 4 single load 5 min duration tests at approx 90% peak HR with varying levels of HRS. These levels were no support (NRSO), and pull on the front handrail of 12 (HRS12), 22 (HRS22), and 34 (HRS34) ft.lbs. of torque meas by a Cybex II dynamometer with computerized feedback to each S. Comparison of ST (mean±sem) levels during these single load tests were as follows:

	HRSO	HRS12	HRS22	HRS34
STmm	-1.52(.21)	-0.62(.16)*	-0.70(.15)*	-0.51(.18)*

*=sig diff from HRS0 ($p<.05$).

No sig diff was found between Test 1 and Test 2 when comparing max HR (143 vs 141), max SBP (172 vs 171), max DBP (75 vs 78), or max ST (-2.6 vs -2.3). It is concluded that HRS, when performed as a static contraction during treadmill exercise, may sig alter ischemia induced ST segment changes.

54. GAO, J. In vivo insulin action on whole body and individual tissues in obese SHHF/Mcc-cp rats with or without acute exercise. PhD, 1991. (W.M. Sherman)

Whole-body glucose disposal, hepatic glucose production, and tissue glucose uptake were meas in lean and obese M SHHF/Mcc-cp rats using hyperinsulinemic, euglycemic clamps incorporating infusion of radiolabelled glucose. Lean rats were studied under sedentary conditions, while obese rats were studied under sedentary conditions or after 2 hrs of running on a treadmill at 10 m/min, 0% grade. Compared to the lean rats, the obese rats had sig higher fasting plasma glucose and insulin concentrations. Despite higher plasma insulin concentrations during the clamps for the obese rats compared to the lean rats, the rates of insulin-stimulated whole-body glucose disposal and the inhibition of hepatic glucose production by insulin were sig reduced in the obese rats. Maximally insulin-stimulated glucose uptake by heart, liver, and soleus muscle was similar for lean and obese rats, whereas it was sig decreased in diaphragm, plantaris, gastrocnemius, red and white quadriceps muscles, and epididymal fat tissue in the obese rats compared to the lean rats. Acute exercise sig lowered the resting plasma glucose concentration but did not affect the resting insulin concentration in the obese rats. Acute exercise sig increased whole-body glucose disposal but did not alter the inhibition of hepatic glucose production by insulin in the obese rats. Acute exercise sig increased glucose uptake in all muscles except plantaris, but did not alter glucose uptake in liver and fat tissues. In conclusion, insulin action on whole-body glucose disposal, hepatic glucose production, and tissue glucose uptake is severely impaired in obese M SHHF/Mcc-cp rats. Acute exercise improves whole-body glucose disposal and muscle glucose uptake in the obese rats, but it does not alter hepatic glucose production or adipose tissue glucose uptake.

55. GARDNER, J.K. A comparison of occupational stress and related variables among salespersons, clerical staff, service technicians, and managers of the Mid-Ohio District of the Xerox Corporation. PhD, 1991. (R.C. Bates)

A limited amount of previous research indicates there may be certain characteristics associated with sales/marketing careers that predispose salespersons to experience high levels of stress and resulting strain. The purpose was to attempt to further clarify the relationships among the variables in the stress process and compare the perceived stresses, experienced strains, coping resources, and levels of job satisfaction of salespersons, clerical staff, service technicians, and managers of one district in a large corporation. The survey instruments utilized consisted of the Occupational Stress Inventory and the job satisfaction portion of the Job Diagnostic Survey. Descriptive stat, r coefficients, regression anal, and ANOVA were used to anal the data obtained from the questionnaires. The findings indicated that the salespersons did not experience sig higher amounts of stress than the members of the comparison gps. The

overall levels of strain, coping resources, and job satisfaction among the 4 occupational gps were not sig diff. The mean levels of stress, strain, and coping of the respondents generally fell within one SD of the normative means. No buffering effect of coping resources was found, although the variables of the stress process were moderately to highly correlated. Furthermore, the types of perceived stresses, experienced strains, and coping resources were diff for each occupational gp. This study supports the contention that the stress process is not the same for any 2 occupations, or, for that matter, any 2 individuals.

56. KERR, D.L. An HIV education needs assessment of selected teacher members of the American School Health Association and the American Home Economics Association. PhD, 1992. (P. Heit)

The purpose was to identify HIV educ needs and obstacles reported by secondary school home economics (N=789) and health (N=76) tchrs. Nearly all of the health tchrs taught about HIV and had instruction to do so, most often through local, state, or national workshops. Resources most used were videotapes, pamphlets, and state curr guides. Most needed were films/videos and developmental guidelines for instruction. Overall the health tchrs were comfortable teaching sensitive topics. They expressed some need for updates on IV drug use, homo/bisexuality, and death and dying. Some of the health sample was not permitted to teach about safer sex (18%) and homo/bisexuality (25%). Over 20% rated overcrowded curr, stdnt attitudes, and lack of materials stressing abstinence as great obstacles to HIV educ. In the home economics sample, 57% reported teaching about HIV. Most used pamphlets, videotapes, and locally-developed curr. Over half had instruction to help them provide HIV educ, most through inservice prog and local workshops. Overall, the group had high levels of comfort in teaching HIV topics. Over half needed knowledge updates on IV drug use, homo/bisexuality, STDs, death and dying, and risk behaviors for HIV. Over 70% was permitted to teach all HIV topics with the exception of safer sex (70%) and homo/bisexuality (56%). In sig comparisons of gps, health tchrs were more likely to teach about HIV and to use state curr and videos than home economics tchrs. Fewer home economics tchrs had instruction for providing HIV educ and they were lacking in state and national workshop/conference training. The home economics gp needed information for planning prog and was less likely to be permitted to teach about nearly all of the HIV topics. Health tchrs felt comfortable teaching homo/bisexuality and home economics tchrs felt neutral. Lack of training was a moderate obstacle to the home economics gp and no obstacle for the health gp.

57. KIENOW, N.L. Death education and death anxiety in student nurse aides. PhD, 1992. (P. Heit)

The effects of a death educ unit and several variables including health locus of control, social value of the elderly, personal attitudes toward aging, selected

demographics on death anxiety variables, anxiety in caring for the terminally ill, and knowledge of death and dying were examined. The Collett and Lester Fear of Death scale was used. A pretest-posttest nonequivalent gps format was used with treatment and control gps. No stat sig diff was noted between gps on anxiety in caring for the terminally ill. The death educ unit increased knowledge but affected no stat diff on any of the other variables. Stdnt nurse aides displayed moderate to high levels of death anxiety, personal anxiety toward aging, and anxiety in caring for the terminally ill. Most stdnts displayed an internal health locus of control. Stdnt scores for social value of the elderly were low to moderate. Low positive relationships between internal health locus of control and fear of death of self were displayed. F displayed a sig higher level on 3 of the death anxiety variables. Caucasian-Americans displayed higher anxiety levels for fear of dying of self than did Afro-Americans. A longer death educ unit, plus a longitudinal study, may be necessary to produce results of more sig.

58. MOORE, S.L. An assessment of attitudes toward gender issues among physical education sport and leisure undergraduates at the Ohio State University. PhD, 1992. (B. Nelson)

A number of changes have occurred in women's equity issues since the implementation of Title IX in 1972. The perceived progress has to some extent masked the prob that still exist and those that have been created by women's changing role as an active participant in sport. The present pop of undergrad for the most part were young children when women's issues were addressed in the 1970s. It is not known to what extent these stdnts have been exposed to women's issues or to what extent they believe that equity issues have been solved. This study proposes a "second generation" look at the attitudes toward women's issues held by the current pop of undergrad in PE, sport, and leisure studies at the Ohio State Univ. As future transmitters of societal values, these young educators need to be cognizant of women's issues in order to portray a positive image of women in society. From the data gathered, future research on gender issues can be recommended.

59. WILLCOX, D.J. An analysis of factors influencing the future inclusion of selected topics in the high school health education curriculum as perceived by directors of health education in state departments of education. MA, 1991. (P. Heit)

The purpose was to assess the influence of current inclusion, relative importance, and potential for controversy on the future inclusion of selected topics in the HS HE curr as perceived by directors of HE in state depts of educ. A total of 25 HE topics were examined. These topics related to key target areas, identified by the U.S. Department of Health and Human Services, for improving the health of adolescents, such as pregnancy, STDs, drug abuse, violence, and

suicide. The study was predictive in nature utilizing a single-gp correlational design. Data were collected through a self-admin questionnaire mailed to directors of HE in state depts of educ. The relationships between the variables studied were examined through zero and higher order r. Multiple regression was employed to anal the collective and separate effects of the 3 independent variables (current inclusion, relative importance, and potential for controversy) on the dependent variable (future inclusion) for each of the HS HE curr topics. Results revealed that a substantial increase was anticipated in the no. of schools that will include the selected topics in the HS HE curr within the next 5 yrs. Despite this increase, the no. of schools anticipated to include the selected topics is fewer than recommended in recent national health promotion and disease prevention objectives. Current inclusion of a specific topic was identified as the best predictor and relative importance as a useful predictor of anticipated future inclusion of a topic in the HS HE curr. Potential for controversy did not appear to relate strongly to anticipated future inclusion of the selected topics.

OKLAHOMA STATE UNIVERSITY **(B. JACOBSON)**
STILLWATER, OKLAHOMA

60. MASSEY, M.S. The development of a criterion-referenced health knowledge instrument for grades four, five, and six. EdD in Higher Education with an emphasis in health and physical education, 1991, 187 pp. (S. Edwards)

Health education tests can help assess stdnt health knowledge, attitudes, and behaviors; however, there seems to be a paucity of current, high quality health knowledge instruments that are designed specifically for the ele grade level. The problem was to design and construct a health knowledge instrument that could be used in grades 4, 5, and 6 and to establish its content validity and reliability. The instrument was developed to represent 3 health content areas: nutrition; tobacco, alcohol, and other drug use; and HIV/AIDS. After a panel of 5 national experts in HE and instrumentation/test construction verified the content validity of the instrument, the 60 multiple-choice item test was admin to 630 4th, 5th, and 6th graders located in 4 ele schools within the Enid (OK) Public School System. A stat anal was conducted on 605 usable test answer sheets to derive info on both the total test and on each individual test item. According to test stat, the instrument was very reliable in terms of both internal consistency and stability. In addition, there was a great deal of similarity among the 3 grade levels with regard to the means, SD, and internal consistency meas. Each test item had functioning responses in that at least someone chose each response as the best answer. The difficulty of the test items was distributed approx in the following manner: 22 items were easy, 13 were moderately easy, 16 were of average difficulty, 2 were moderately difficult, and 7 were difficult. 13 test items contained discrimination indexes below 0.20 and were reviewed

for revision. As a result, 10 of these items were revised. The findings suggest that the health knowledge instrument is valid, reliable, and relevant; it is a suitable evaluation tool for 4th, 5th, and 6th grade stdnts.

OREGON STATE UNIVERSITY
CORVALLIS, OREGON

61. BEESON, L.J. Health knowledge competencies and essential health skills of entry level college freshmen enrolled in Oregon's research universities. PhD in Health, 1992. (M.M. Smith)

The purposes were to: 1) evaluate health knowledge competencies, 2) assess health skills, and 3) determine interrelationships among health knowledge, health skills, and self-reported behavioral demographic variables for Oregon entry-level coll freshmen who had graduated from OR schools. An instrument, the "HE Survey," was developed with the assistance of 2 Delphi panels, consisting of (1) nationally known health educators and (2) recognized OR health educators. The first panel contributed to the health knowledge competency part of the survey, including issues of community health, consumer health, environmental health, family life, mental and emotional health, injury prevention and safety, nutrition, personal health, prevention and control of disease, and substance use and abuse. The second panel contributed to the health skills part of the survey, including safe-living, stressor/risk-taking management, physical fitness, and nutrition, as defined by the OR Dept of Educ. Based upon health information derived from the first 2 parts, the third survey section considered various demographic and behavioral variables, including substance use, eating habits, and physical fitness. The data derived from admin of the survey were evaluated by criterion-referenced and empirical (ANOVA, t-test, chi-square) meas at the .05 alpha level of sig. Data analysis disclosed that: 1) the Ss did not meet the 85% mastery standard for criterion-referenced meas for any of the health knowledge competencies or essential health skills; 2) there were sig diff among the Ss for the content areas of consumer health and the health skills of safe-living, physical fitness, and nutrition, as well as the behavioral areas of marijuana use, fitness level, and wearing auto seatbelts; and 3) gender diff existed for the content areas of family life and nutrition. From analysis of the research findings, it was recommended that there is need for additional collaboration among secondary school health educators, educ and health agencies, and appropriate higher educ personnel to improve the health knowledge and skill needs of OR stdnts. It was suggested that cooperative efforts at the secondary and univ level to form coordinated, on-going evaluation and research projects would be one means to achieve this goal.

62. GOOD, D.L. College women, alcohol consumption, and negative sexual outcomes. PhD in Health, 1991. (R.J. Donatelle)

The purpose was to assess the association of alcohol consumption with negative sexual outcomes in coll women, by means of a survey admin to a pop of F stdnts from Oregon State Univ and Western Oregon State Coll (n=430). Data collection took place during winter term, 1991. Average monthly alcohol consumption and the frequency of alcohol consumption prior to sexual intercourse were assessed. The association of alcohol consumption with experiences of sexual coercion, in both the victim and the perpetrator, was also assessed. Negative sexual outcomes assessed were sexually transmitted diseases (STDs), unplanned pregnancies and pregnancy "scares," 4 categories of sexual coercion (unwanted touching, verbally forced date rape, physically forced date rape, and stranger rape), and unprotected intercourse (condom usage). A strong association between alcohol consumption and sexual coercion was found. Women who had experienced sexual coercion consumed sig more alcohol on the ave than those who had not had such experience. Also, it was found that alcohol was consumed by the perpetrator, the victim, or both in the majority (57-69%) of incidents of sexual coercion. While F who had experienced STDs appeared to drink more (mean monthly alcohol consumption = 16.9 drinks) than those who had not experienced STDs (mean monthly alcohol consumption = 12.3 drinks), small cell size and sample variability made meaningful stat comparisons inappropriate. No association between alcohol consumption and unplanned pregnancies and pregnancy "scares" was found. Alcohol consumption prior to intercourse had a paradoxical relationship with both sexually transmitted diseases and condom usage: those who always or never drink prior to intercourse were less likely to experience an STD and more likely to use condoms than those who say they occasionally drink prior to intercourse. It is recommended that univ health educators disseminate the findings on alcohol consumption and sexual coercion and STDs. It is also suggested that they, along with those responsible for stdnt services and univ policies, should encourage nonalcoholic forms of social support, stress management, and recreation on campus.

63. HEIL, D.P. The effect of seat-tube angle variation on cardiorespiratory responses during submaximal bicycling. MS in Human Performance, 1991.

The purpose was to study the effect of seat-tube angle (STA) variation on various CR variables in trained competitive triathletes and cyclists during steady-state bicycling. 25 trained competitive triathletes and cyclists participated in 4 successive submax tests at a work rate that approximated 70% of their VO_{2max}. Each test corresponded to one of 4 STAs being tested (69°, 76°, 83°, 90°). All Ss performed a VO_{2max} test on a cycle ergometer at least 48 hours prior to the submax testing. The following were required of Ss: 1) a minimum of 2 yrs competitive experience; 2) be training for the upcoming season; 3) and the Ss must have used aerodynamic handlebars on a regular basis during the 3 mos

prior to testing. To test the effect of STA, the ergometer's dimensions were set to match the S's own racing bicycle except for STA. This setup was accomplished with a specially constructed stem and seat post that allowed variable fore-aft positioning. The order of STAs tested was counterbalanced to control for order effects. A 3 min warmup was followed by 10 min of riding at a work rate that approximated 70% of the subject's VO_{2max} at 90 RPM while using aerodynamic handlebars. This was followed by 25 min of rest until the next submax test. A one-way repeated meas ANOVA determined that 7 of the 8 dependent variables showed sig diff between means at the treatment STAs ($p<0.05$). Relative and absolute VO_2, HR, V_E, RPE, VCO_2, and RQ all showed sig diff while V_E/VO_2 did not. The 7 variables with sig diff all had sig negative linear trends ($p<0.05$) that maximized at the means at 69° and minimized at the means at 83 and 90°. All 7 variables showed the means at 83° and/or 90° to sig differ from the means at 69°. These results demonstrate that the 83° and 90° STAs are more advantageous at a constant work rate than the 69° STA when using aerodynamic handlebars. The findings help to validate the claims made by many top professional triathletes about the performance enhancing potential of using a more forward STA from the standard 72°-75°.

64. OVALLE, S.E. A comparison between anthropometric regression equations and hydrostatic weighing for predicting percent body fat of adult males with Down syndrome. MS in Movement Studies of the Disabled, 1991. (J.M. Dunn)

The purpose was to compare the accuracy of 8 anthropometric regression equations with hydrostatic weighing for predicting the % BF of adult M with Down syndrome (DS). BF % were predicted for 18 adult M with DS. Skinfold, circumference, and bioelectric impedance anal data were collected to determine how accurately the regression equations could predict the % fat of these individuals when compared to hydrostatic weighing. Since hydrostatic weighing involves a number of complex procedures 2 pilot studies were conducted. 4 Ss participated in the pilot studies. The first was conducted to determine if a constant value of RV could be utilized during hydrostatic weighing, or if a meas value, determined by O_2 dilution, needed to be used. The second was performed to determine if hydrosatic weighing at total lung capacity without head submersion could be substituted for the conventional method. Paired t-tests revealed no sig diff in either pilot study, $t(3)=.274$, $p<.05$ and $t(3)=.314$, $p<.05$, respectively. Pearson product-moment r revealed r values of .99 for both pilot studies. Based on these results a constant RV value of 1.50 L and hydrostatic weighing at total lung capacity without head submersion were the procedures utilized in the main research study. A one-way repeated meas ANOVA revealed a sig diff between the BF data obtained from hydrostatic weighing and the regression equations, $F(8, 136)=16.05$, $p<.05$. Dunnett's post hoc procedure revealed sig diff in 5 of the 8 equations. Of the 3 equations that did not yield sig diff results, only the Kelly and Rimmer (1987), $r=.89$, $SEE=2.51$, $p<.05$, can

be recommended for use. Based on these results, it appears that a constant value of 1.50 L for RV and hydrostatic weighing at total lung capacity without head submersion can be utilized when predicting the % BF of adult M with DS. This will allow increased numbers of individuals with DS to be hydrostatically weighed. Also, the use of the Kelly and Rimmer equation will allow researchers and practitioners to utilize an easy, fast, accurate, and inexpensive method of predicting the % BF of adult M with DS.

65. SCHNEIDER WOOD, N.M. Effectiveness of selected components in behavioral weight-loss interventions: A meta-analysis. MS in Health, 1992. (R. Donatelle)

The purpose was to conduct a meta-anal to determine which components used in behavioral wt-loss interventions were most effective in producing wt loss. The project was a replication and expansion of a study conducted by Bennett (1986). Published and unpublished studies written between Jan. 1, 1985 and Mar. 1, 1992 were located through an extensive search of the literature. Only studies meeting specific inclusion criteria were included. 3 dependent variables (mean posttreatment wt loss [MPWL], mean follow-up wt loss [MFWL], and maintenance ratio [MR]) were used to determine the effect of 39 independent variables. Overall mean anal, Pearson product moment r, and ANOVA were employed to determine sig relationships ($p<.05$) between the dependent and independent variables. A total of 130 treatments were coded from 77 studies. Mean pooled wt loss was 12.89 lbs at posttreatment and 12.96 lbs at follow-up. MPWL was most affected by longer wks of treatment duration and higher no. of hrs of treatment contact. Higher wt losses were also found at posttreatment in those prog that used strict diets of ≥1000 kcal per day, conducted exercise in the treatment sessions, held treatments in a hospital or clinical setting, and employed professional therapists as opposed to stdnts or lay leaders. The primary determinants of MFWL appeared to be longer treatment duration and treatment contact hrs, higher amounts of wt loss reported at posttreatment, strict diets of ≤1000 kcal per day, and hypnotherapy used in treatment. Use of hypnotherapy, no monetary incentives, and individual contact during treatment appeared to be the primary determinants of MR. While effective during the treatment phase, monetary incentives negatively affected MFWL. Additionally, higher monetary incentives coupled with higher monetary refunds negatively affected MFWL and MR. Based on the conclusions of this meta-anal, the following recommendations were made. Increase the amount of research conducted on the use of hypnotherapy as an effective behavioral strategy in wt loss prog. Competition and monetary incentives should not be used as the only motivator for wt loss in a treatment prog.

66. SIMS, G-T. Sexuality education: A descriptive study of adolescent interests and perceived needs as reported by middle school students. MS in Health Education, 1992. (M.M. Smith)

The purpose was to collect information on relevant sexuality educ content for adolescents by assessing stndts' interests and perceived needs. Ss in this study were middle school stdnts. 2 methods of data collection were employed; therefore, this study was conducted in 2 phases. In the first phase, questionnaires were completed by 224 sixth, seventh, and eighth grade stdnts of the Greater Albany School District. Responses from the Student Sexuality Education Questionnaire (SSEQ) revealed sexuality topics of importance based on interest and perceived need. Subsequent to identifying sexuality topics of importance, stat analyses were performed on each sexuality topic. Kruskal-Wallis anal were performed on each sexuality topic and determined that 5 (of 23 listed in the SSEQ) were sig between sixth, seventh, and eighth grade stdnts. 17 topics tested stat sig when F and M responses were submitted to Mann-Whitney analyses. Diff between grade levels and sexes were identified for 3 topics in both tests of sig. These topics were F reproductive system, M reproductive system, and dating. In the second phase, semi-structured interviews were conducted with 31 stdnts who completed the SSEQ. Stdnt consent, grade level, and sex were criteria used in selecting the Phase II sample. Stdnts' responses to Interview Guide questions were tape-recorded, transcribed, and content analyzed. An analysis of the transcripts revealed similarities and diff between Phase I and II data. In both phases, stdnts reported that AIDS, STDs, preventing STDs, preventing pregnancy, and sexual abuse were most important to learn about in school. Additional data that emerged during the interview process related to preferred sources and grade levels for sexuality educ. Stdnts generated a list of suggestions for relevant sexuality educ.

67. SMITH TESCHNER, P.J. Comparative analysis of factors influencing participation in an employee health promotion program, including characterizations of participants and nonparticipants. PhD in Health, 1992. (R. Donatelle)

A phenomenal growth in worksite health promotion has occurred with the recognition that these programs have the potential to reduce health care cost. However, to be effective as a cost containment strategy, health promotion prog must successfully attract participants, particularly those whose health is most at risk. Due to limited research, there is a need to investigate the characteristics of individuals attracted to worksite health promotion prog and the factors that influence their participation. The purpose was to explore the characterization of participants and nonparticipants and to examine the factors that influence participation in health promotion prog. A self-selected participant gp (n=173) was compared to a nonparticipant gp (n=146) with respect to sociodemographic characteristics, health care costs, health status, and health risk behaviors. Qualitative and quantitative data were collected from the employer's records

and from a questionnaire designed to address specific components of the prog. Results indicated that management/administrative staff were more likely to participate in the health promotion prog than were classified or faculty staff. For the period of the survey, participants were also more likely to be nonsmokers and were less likely to be injured on the job during one of the survey yrs. The workers' compensation claims costs for nonparticipants were sig higher in 1 survey yr and over the 2 yr average period considered. However, the nonparticipant claims were strongly influenced by one costly claim in 1988. The 2 gps did not differ when the absenteeism data from the employer's records were analyzed. In addition, it was found that Ss with the highest levels of participation also had the fewest number of children living in the household. Time constraints as a result of job schedule, work/activity load, and meeting times of the activities were the most important factors limiting participation in the prog. Further research is needed to assess prog effectiveness and prog impact upon employee health and health care costs. The comparisons should be made within as well as between gps.

68. SUPHAWIBUL, M. Competencies for adapted physical educators in Thailand. PhD in Human Performance, 1991

The purpose was to identify competencies which are perceived as important by Thai adapted physical educators, to determine the diff that exist in the way PE professors and adapted physical educators judge the level of each competency, and to recommend a set of competencies for adapted physical educators in Thailand. The questionnaire, Competencies for an Adapted Physical Educator in Thailand containing 59 competencies based on 6-point Likert type scales, was used in this study. The 59 competencies were translated from the Competencies for an Adapted PE Specialist, modified by Dempsey (1986) from the 1981 AAHPERD Guidelines for Adapted PE. The meaning equivalence of the competencies was validated by using the Delphi method along with the back translation technique. The computed reliability coefficients of the questionnaire, using the Hoyt-Stunkard's technique was .9577. The study's population consisted of 31 coll and univ professors who have taught adapted PE courses to coll/univ stdnts and 40 adapted physical educators who have conducted physical activities for people with disabilities in schools and institutions for the disabled in Thailand. The results showed that 1) the competencies were perceived as extremely important by professors and adapted physical educators in Thailand, 2) the perceptions of professors and physical educators on the competency statements individually and overall were similar since the null hypotheses were not rejected, and 3) the relationship of both gps on the importance of each competency and competency category was high with a Spearman rank r of .7842, and .8857 respectively. It was recommended that this set of competencies should be used as guidelines for the preparation of adapted physical educators in Thailand.

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(H.M. LUNDEGREN, W. L. KENNEY, A.R. GRAEFE)

69. BABINCHAK, P.A. The effects of sensory stimulation on the responsiveness of selected residents of a nursing home. MS in Recreation and Parks, 1991, 113 pp. (J. Dattilo)

The purpose was to examine the effects of a sensory stimulation prog on the responsiveness of selected residents of a nursing home. 4 Ss participated in the study, which was a single-subject design including a combination reversal ABAB and multiple baseline. The investigation included 4 phases: (a) baseline 1: a verbal introduction to the prog; (b) treatment 1: the sensory stimulation prog; (c) baseline 2: identical to baseline 1; and treatment 2: identical to treatment 1. The sensory stimulation prog included use of specific interventions to provide participants with auditory, visual, olfactory, tactile, proprioceptive, and gustatory stimulation. The prog was implemented during treatment phases of the study for 12-min sessions, 4 times per week. The investigator implemented the prog. Ss' duration of open eyes and no. of vocalizations were used as indicators of responsiveness to the sensory stimulation prog. All sessions were videotaped to record S behavior. The investigator served as the primary observer and viewed all videotaped sessions. Behavioral observations were recorded on a checklist. A certified therapeutic recreation specialist served as the secondary observer and viewed 50% of sessions to assist with reliability of results. Duration of open eyes and no. of vocalizations were plotted daily on separate graphs for each S. Visual inspection of the graphs was used to anal the data. Inspection showed that 2 Ss met the criteria to accept the hypothesis related to the behavior of vocalizations as an indicator of responsiveness. 2 other Ss demonstrated results which allowed for acceptance of the hypothesis related to open eyes. These findings present mixed results of the effects of sensory stimulation on responsiveness. Although sensory stimulation may increase responsiveness in selected individuals, the therapeutic recreation specialist should consider and assess individual diff before implementing a prog or specific type of sensory stimulation.

70. BOLGER, M.A. The effects of exercise on anxiety, work accuracy, and creativity. MS in Exercise and Sport Science, 1992, 85 pp. (N. Mutric)

This study was an examination of the effects of an acute bout of exercise on anxiety, work accuracy, and creativity. The Ss were 27 coll stdnts who were placed into one of two conditions, an exercise condition or a nonexercise control. Ss in both conditions completed a precondition anxiety meas (POMS-BI; Lorr & McNair, 1980). Those in the exercise condition then participated in an aerobics class while those in the control condition listened to a lecture. Following both conditions, all Ss completed a postcondition anxiety meas, a

work accuracy meas, and a creativity meas. A multivariate anal revealed no sig diff in anxiety or work accuracy after exercise. Exercise was sig related to an increase in creativity. Anal also revealed a sig neg relationship between anxiety and both work accuracy and creativity after both exercise and lecture.

71. CASE, A.J. An exploration of the opinions of recreation and parks/leisure studies faculty and public sector practitioners concerning the computer competency skills of recreation and parks/leisure studies baccalaureate students. MS in Recreation and Parks, 1991, 219 pp. (M. Christiansen)

The problem was to identify and compare opinions concerning the computer competency skills grads should possess upon completion of their baccalaureate degrees. Data were collected through the circulation of a mailed questionnaire. An overall response rate of 59.8% (n=342) was obtained. The ANOVA and t-test anal were conducted to determine whether faculty and practitioners were stat sig in agreement on the specific computer competency skills. Frequency data were obtained as to the brands of computer, types of computer software, and types of instructional components available to baccalaureate stdnts and public sector employees. Conclusions were that practitioner respondents are less in agreement than faculty respondents that specific computer competency skills are needed by baccalaureate stdnts, practitioner respondent agencies have available IBM/IBM compatible computers more than Macintosh computers, and 3/4 of NRPA/AALR COA accredited prog faculty respondents indicated that their departments have an instructional component in general computing for baccalaureate students.

72. CHENGALUR, S.N. Force-time characteristics of maximal and submaximal isometric muscular actions. PhD in Exercise and Sport Science, 1992, 188 pp. (R.C. Nelson)

Force-time curves obtained from isometric muscular actions of elbow flexors and extensors were anal to determine if variability of these curves could be used to differentiate between max and submax efforts. The effects of bilateral muscle action on variability associated with max and submax efforts and the effect of increasing complexity of the task, by performing a diff effort level with each hand, were also investigated. A total of 32 M and 32 F between the ages of 20 and 45 participated; all performed bilateral grip tests. The Ss were randomly assigned to 2 gps (consisting of an equal no. of M and F); one group performed elbow flexion tests and the other performed elbow extension tests. Force was assessed during steady exertion lasting for 5 sec. The results showed that a greater variability was associated with force-time data obtained from submax voluntary muscular actions than max voluntary muscular actions. In addition, greater variability of the force-time curves was associated with bilateral testing. Finally, performing diff levels of effort with both hands increased the variability of the submax efforts for the flexion tests and extension tests.

73. DROGIN, E.B. Evaluating the boater experience: The interrelationship of recreational use, user contacts, experiential impacts, satisfaction, and displacement. PhD in Recreation and Parks, 1991, 165 pp. (A.R. Graefe)

The study focused on peak boat use and its effect on boating quality at Berlin Lake, OH during the summer of 1989. Emphasis was placed on indicators of peak use, user contacts, perceptions of and reactions to boat densities encountered, and satisfaction with the boating experience. The primary activity in which Ss were engaged was investigated for its potential influence on the relationships between variables. Boating activity was examined through counts of vehicles and trailers parked at access points on selected weekends. Exit interviews were conducted with 642 boaters at boat ramps, campgrounds, marinas, and boat clubs. Mail questionnaires were completed by 224 private dock permit holders. Hypothesized relationships between study variables were tested utilizing path analysis (i.e., zero-order r and linear regression equations calculated for the total sample and subgps). One-way ANOVAs with post-hoc Scheffé tests were employed to determine diff among activity subgps. Satisfaction can be understood in terms of evaluations of specific elements of the recreation experience. The strong intercorrelation of satisfaction with displacement reflects the interaction of experiential affect and outcome meas. Boating quality is largely a function of perceived impacts to the experience. Satisfaction was found to highly and reciprocally impact displacement. Total displacement may be a more discriminating meas and managerial tool for evaluating recreational experiences. Personal, situational, and activity variables mediate the relationships between use level and indicators of experiential quality.

74. EVANS, S.D. Opinions of Pennsylvania Alliance for Environmental Education members toward preservice and inservice teacher education in environmental education. MS in Recreation and Parks, 1991, 83 pp. (P. Farrell)

The problem was to investigate opinions about preservice and inservice teacher training in environmental education that are held by Pennsylvania Alliance for Environmental Education (PAEE) members. Specifically, awareness of potential barriers between tchrs and environmental educ curr content, opinions concerning training educators in environmental educ, direction for preservice tchr training, and the incorporation of environmental educ in the schools were addressed. Survey methodology was chosen. A new instrument, the "PAEE Members Questionnaire," was developed and sent to a random sample of PAEE members. A response rate of 67% generated 162 surveys that were usable for anal. It was concluded that PAEE members are aware of many of the barriers between tchrs and environmental educ. The most important barriers are: lack of training to teach environmental educ, lack of environmental knowledge, and lack of time to teach environmental educ. Barriers to environmental educ can be overcome through tchr training workshops.

75. FARR, J.A. Factors that influenced male athletes to accept baseball scholarships from Old Dominion University. MS in Exercise and Sport Science, 1992, 70 pp. (R. Sabock)

The purpose was to determine the factors (personal, educational-professional, physical, geographical, recruiting, and athletic) that have influenced M stdnt-athletes to accept baseball scholarships from Old Dominion Univ. The Ss were 57 M athletes who received partial or full baseball scholarships from 1982-1988. Data were collected by a Likert-type rating scale questionnaire of 41 items. A background data sheet was also completed by the Ss. A chi-square one-sample test of equal probability was used to determine sig for the 41 statements. The anal revealed there were sig factors that were major influences in the decision-making process of the stdnt-athletes. The chi-square test indicated that there was little diff in the factors that influenced urban and nonurban stdnt-athletes in their decisions.

76. FINN, P.M. Ethical attitudes of intercollegiate male head lacrosse coaches. MS in Exercise and Sport Science, 1992, 89 pp. (R. Sabock)

The investigator's intent was to study the ethical attitudes of Div 1 and Div 3 M head lacrosse coaches toward selected ethical situations in lacrosse. The survey was developed by the investigator and consisted of 22 hypothetical situations and accounted for 5 demographic variables. It was mailed to 150 coaches whose schools were members of the U.S. Intercollegiate Lacrosse Association. Through the use of descriptive stats, the investigator computed means, frequencies, and SD for each situation. T-tests were calculated for each of the 5 variable gps and the hypotheses were tested. The tests revealed no sig diff between the ethical attitudes of full-time and part-time coaches, Div 1 and Div 3 coaches, and those coaches holding a postsecondary degree in PE and to those who do not. Coaches with more experience were found to be more ethical than coaches with less experience, and coaches with winning records more ethical than those with losing records.

77. GORDON, W.N. The leisure activity selection process: The role of activity as an attractor. PhD in Leisure Studies, 1991, 274 pp. (H. Lundegren)

The researcher's theoretical model of the leisure activity selection process, incorporating "shapers," "tuners," and "attractors," was preliminarily tested. The "attractor" effects of activity were operationalized through the development of an inventory based on activity anal theory. This instrument (LCPI) was pilot tested for reliability and subsequent revisions made. 2 samples were drawn for the study: one (N=83) was comprised of institutionalized persons undergoing psychiatric treatment; the other (N=95) was comprised of coll stdnts. To each sample, the LCPI and the Mirenda Leisure Interest Finder (MLIF) were coadmin. Interscale r between the inventories were computed

across both samples. Subsequently, composite independent variables were built from item clusters across the LCPI subscales; Mirenda's activity categories were considered the DVs. Stepwise multiple regression anal were conducted to investigate the comparative predictive effects of the LCPI (representing interest in activity components) on the MLIF (representing interest in activity types) across the samples. Further regression anal were conducted where the effects of gender, experience, and the composite variables from LCPI on MLIF outcome were examined. The 2 samples were found to act differently with respect to demonstrated predictive ability; data from the coll sample were most predictive of activity interest. The LCPI composite variables, representing the "attractors" in the conceptual model, held up well against the "shaper" and "tuner" variables. Major conclusions were that 1) qualities or components of leisure activities are dynamically related to interests in activity types; 2) to a considerable extent, activity interests can be predicted by first knowing those activity components that are of interest; 3) this predictive ability differs across 2 samples where one represents persons with special needs.

78. KLEBAN, P.L. The relationship between shared family recreation time and expressed parent-adolescent conflict. MS in Leisure Studies, 1991, 126 pp. (J. Dattilo)

The purpose was to assess the relationship between participation levels of adolescents receiving in-patient psychiatric care in regard to shared recreation time with family members prior to hospitalization and to compare reported participation levels with depressed levels of parent-child conflict (i.e., scores in communication) prior to hospitalization. Additionally, between-gp diff were examined for adolescents receiving in-patient psychiatric treatment (Gp I) and for adolescents not receiving in-patient psychiatric treatment (Gp II) for the variables of shared family rec time, communication scores with mothers, and communication scores with fathers. Adolescents surveyed in Gp I were receiving in-patient psychiatric treatment at the Meadows Psychiatric Center in Centre Hall, PA. Adolescents surveyed in Gp II were attending the Penn-Cambria HS in Cresson, PA. All Ss were between the ages of 14 and 18 and resided with at least one biological or adoptive parent. Results indicated that adolescents receiving in-patient treatment reported sharing less family rec time than those adolescents not receiving psychiatric treatment (X^2=17.04, df=4, p.005). Adolescents receiving in-patient psychiatric treatment reported more problems in communication with mother (t=1.6751,df=165,p=.05) than adolescents surveyed in the community. Adolescents receiving in-patient psychiatric treatment were not sig diff from their peers in regard to reports of communication scores for father (t=.1320,df=132,p=.44). The relationship between shared family rec time and communication scores for both mothers and fathers were stat sig. However, the strength of the r does not suggest a strong relationship between variables for either mothers or fathers.

79. LUTE, L.K. Leisure behavior of lesbians in relation to alcohol consumption. MS in Leisure Studies, 1992, 67 pp. (H.M. Lundegren)

As a means to explore preferred leisure behavior and alcohol consumption among lesbians, a Leisure Interest Survey (adapted from McKechnie, 1974) was mailed to a randomly selected group of 250 women subscribing to the National Women's Mailing List who lived throughout the United States and indicated a desire to receive lesbian literature. The survey instrument included a section regarding frequency of participation in selected rec activities and whether alcohol was consumed 1 hr prior to, during, or 1 hr after participating in the activities at least 50% of the time, and a section designed to solicit sociodemographic information. The overall response rate obtained was 29% (n=70). X^2 anal was used to determine stat relationships between alcohol consumption, sociodemographic information, and rec activities. The major conclusions were that rural lesbians are twice as likely to participate in alcohol-related activities as those living in urban areas; alcohol consumption is not sig related to preferred rec activities; and income, level of educ, and age are not sig related to alcohol consumption.

80. McGUIRE, J.R. An examination of environmental attitudes among college students. MS in Parks and Recreation, 1992, 169 pp. (A.R. Graefe)

The primary focus was to investigate the relationship between two attitudinal components: the affective component, represented by the environmental concern of stdnts, and the conative component, represented by the behavioral intentions of those stdnts. The instruments employed included Dunlap and Van Liere's (1978) "New Environmental Paradigm" and Thompson and Gasteiger's "Environmental Attitude Survey" (1985). In addition, the research examined the influence of sociodemographic factors on environmental attitudinal choices. A sample pop of 250 stdnts, considered representative of the stdnt pop of the Pennsylvania State Univ, was surveyed. 214 questionnaires (86%) were considered usable in the analysis. Data were anal with Cronbach Alpha Coefficient, Pearson's r Coefficient, and one-way ANOVA. The testing of the relative homogeneity of items within each scale exhibited sufficient levels of internal consistency. The stat revealed a sig relationship between environmental concern and the behavioral intentions of stdnts, as well as between behavioral intentions and several demographic variables. The results indicate that environmental concern is a reasonable predictor of environmentally favorable behavioral tendencies. Furthermore, the results imply that sociodemographics have limited influence on environmental attitudes, and political orientation appears to be the only reasonable predictor of behavioral intentions in favor of the environment.

81. MOORE, R.L. Attachments to recreation settings: The case of rail-trail users. PhD in Recreation and Parks, 1991, 108 pp. (A.R. Graefe)

The problem was to examine the extent to which recreationists value or identify with rec settings and investigate which variables are associated with these "attachments." On-site interviews and mailed surveys were completed by 1,216 bicyclists, walkers, and joggers on three "rail-trails" in IA, FL, and CA. Factor anal confirmed 2 dimensions place attachment: a functional place dependence based on how well a setting facilitated a user's activity and a more emotional place identity indicating the extent to which a setting was a central part of a user's life. Stat sig bivariate relationships were found for both place dependence and place identity and the following independent variables: users' gender, users' age, frequency of use during the past 12 mos., miles traveled from home to trail, level of activity specialization, activity engaged in, and no. of mos. associated with trail. Place dependence was also sig related to users' educ level and place identity was sig related to users' household incomes and trail visited. Multiple regression anal showed that place dependence could be best predicted by frequency of use during the last 12 mos. and miles from home to trail. Place identity was best predicted by level of activity specialization, miles from home to trail, frequency of use during the past 12 mos., mos. associated with the trail, and users' educ level. Trail visited interacted sig with several variables. The multiple R2 for place dependence and place identity were .149 and .280 respectively.

82. SCHAEFFER, K.R. Outdoor recreation participation of Maryland residents in Maryland state forests and parks: An analysis of participation barriers. MS in Recreation and Parks, 1991, 201 pp. (A.R. Graefe)

This study focused on MD residents' use and nonuse of MD state forests and parks, with special emphasis on the interrelationships of outdoor rec activities, barriers to participation, importance of site/service attributes in the selection of an outdoor rec site, use patterns in MD state forests and parks, attributes which would encourage participation, information sources, and demographics. A mail survey was distributed to a random sample of 1,058 MD residents during the winter/spring of 1991. A general profile of participants (55% of sample) and nonparticipants (45% of sample) was generated and the impact of barriers on residents' participation was anal. Research questions were investigated through the use of frequency distributions, chi-square anal, and discriminant function anal. One-half of the respondents who noted that they visited MD state forests and parks, but not as often as they would like, indicated the presence of some barrier(s). The most frequently reported barriers to participation included the lack of time, lack of information about a site or prog, lack of money, an inconvenient outdoor rec site location, and the amount of crowding at a rec site. People select outdoor rec sites based upon those attributes which best fulfill their rec and personal needs (e.g., clean, safe facilities; adequate parking areas;

hiking trails; and picnic areas). A discriminant function anal enabled the prediction of visitation with 75% accuracy, based upon 13 independent variables (i.e., income, barriers of public transportation, skill, money, fees, site poorly maintained, lack of information, dislike staff, too young, too old, no one to do an activity with, the convenience of outdoor rec, and those persons with some but not enough information regarding opportunities for outdoor rec in state forests). In sum, the citizens of MD are faced with personal, physical, and environmental barriers which limit their participation in the state forests and parks. Further, the lack of communication of outdoor rec information to the public appears to be a sig contributing factor to nonuse. The Department of Natural Resources-Maryland Forest and Park Service must review their operating strategy, particularly in the marketing arena and public service delivery, to encourage participation.

83. SIMONEAU, G.G. The effects of diabetic distal symmetrical peripheral neuropathy on static posture. PhD in Sport and Exercise Science, 1992, 300 pp. (P.R. Cavanagh)

The effects of diabetic distal sensory neuropathy on static posture were investigated. 17 diabetic Ss with sig neuropathy (ages 40 to 70) participated. They were matched based on gender, age, wt, and ht with 17 diabetic individuals without sig neuropathy and 17 nondiabetic Ss. Each S was tested for static postural stability (using the center of pressure signal from a force platform) under 9 "sensory" conditions where head position, vision, and somatosensory function were manipulated. Compared to the 2 other gps, the neuropathic Ss exhibited sig greater difficulty maintaining a stable stance position (as indicated by greater excursion and range of the center of pressure signal) for all conditions ($p<.01$). In general, no stat sig diff ($p>.05$) were found for the postural characteristics of the nonneuropathic diabetic Ss and the nondiabetic gp. While diabetes per se did not influence posture, these results are strongly indicative of the detrimental effects of neuropathy on the control of balance. It was also determined that the somatosensory system accounted for at least 40% of the total control of posture, making this sensory system the most important contributor to balance.

84. RAYMORE, L.A. The relation of self-esteem to constraints on leisure among adolescents. MS in Leisure Studies, 1992, 86 pp. (G. Godbey)

The study was based on a model of constraints on leisure originally proposed by Crawford and Godbey (1987) and elaborated on by Crawford, Jackson, and Godbey (1991). The study sought to establish the following: 1) intrapersonal, interpersonal, and structural constraints on leisure exist; 2) the perception of constraints on leisure is related to self-esteem and gender; and 3) the 3 types of constraints are hierarchically related. The sample consisted of 363 M and F grade 12 stdnts from 3 HSs located in a suburb of Toronto, Canada. An

instrument developed by the author was used to meas the perception of constraints related to starting a new leisure activity, while the Rosenberg Self-esteem Scale was used as a global meas of self-esteem. A factor anal provided support for the existence of intrapersonal, interpersonal, and structural constraints as 3 subcomponents of the multidimensional concept of constraints on leisure. Self-esteem was found to be sig related to the perception of intrapersonal, interpersonal, and total constraints on leisure; people who were low on self-esteem reported higher amounts of constraint. F were found to have sig lower self-esteem and sig higher amounts of intrapersonal and total constraints than M. The use of Pearson chi-square tests and a meta-analytical model which utilized a binomial test, provided support for Crawford et al.'s proposal that intrapersonal, interpersonal, and structural constraints exist in a hierarchy. Implications for service delivery and further research are discussed.

85. WAI, J.P.M. The ceiling effect of respiratory workrate on peak exercise performance during flow resistive loading and unloading. PhD in Exercise and Sport Science, 1992, 187 pp. (J. Hodgson)

Eight M cyclists (age=23.1±1.6 (SEM) yrs, VO_{2max}=59.0±1.1 ml.kg^{-1}.min^{-1}) underwent four 15 w.min^{-1} incremental cycling tests breathing room air (N_2-O_2), normoxic helium (He-O_2), N_2-O_2 with restricted external airway (R-N_2-O_2), and He-O_2 with the external restricted airway (R-He-O_2). One-tail paired t-tests with adjustments for the level of sig by Bonferroni's method were employed to compare between He-O_2 and N_2-O_2, R-N_2-O_2 and N_2-O_2 and between R-He-O_2 and R-N_2-O_2. Respiratory workrate (W_{rs}) increased exponentially and reached similar ($p>0.0167$) plateaus (Wrs_{peak}) at exhaustion in N_2-O_2, R-N_2-O_2, and R-He-O_2. Flow resistive loading accelerated the onset of Wrs_{peak}, leading to a more rapid exhaustion. Unloading the imposed resistance by He-O_2 delayed the onset of Wrs_{peak} and exhaustion. In N_2-O_2 although Wrs_{peak} reached 80% of max, it did not seem to limit peak VO_2. He-O_2 unloading did not increase ($p>0.0167$) peak VO_2; however, Wrs_{peak} was decreased to 62% ($p<0.0167$) of max. The ceiling effect of respiratory workrate limits peak exercise performance when respiratory workrate exceeds 80% of max during flow resistive loading.

86. WANDERSTOCK, J.B. The cutback management criteria process in NCAA Division 1-A athletics. MS in Exercise and Sport Science, 1992, (T. Haggerty)

The problem was to describe and analyze the factors intercoll athletic directors (ADs) perceive are most important when deciding to reduce financial support to one or more varsity sports in their prog. In addition, the study attempted to determine any geographic regional diff on these factors. Subjects were the ADs of the total pop of NCAA Div 1-A institutions (N=106). Data were collected by admin of a mailed survey requesting each AD to indicate the importance (on

a 7-point scale) each of 59 possible criterion items had over the cutback decision-making process. The 59 items were grouped into 3 broad categories based on the subjective judgements of the investigator and the thesis advisor. Factor analysis reduced these items to 8 factors and revealed that ADs perceive Executive Views, Athletic Department Image, and Spectator Appeal as the most important factors in determining cuts. Factors commonly associated as being important, such as Revenue Sources, while noted as important, were not among the most important factors. Repeated meas ANOVA, followed by Tukey's critical diff post hoc test, revealed no sig diff among NCAA geographic regions.

87. WANG, C.M. An inquiry into the perceived ideals held by experts for regional tourism development in the state of Pennsylvania for the year 2000. PhD in Leisure Studies, 1991, 225 pp. (G. Godbey)

The purpose was to explore the ideals of regional tourism development in 3 PA regions for the year 2000 as perceived by selected tourism experts. 3 subproblems were examined: (1) the level of congruence in the ideals within a region and among the 3 regions across the state, (2) the perceived ideal role of government in regional tourism development, and (3) the ideal level of economic self-determination. A qualitative research methodology was utilized. The collection of data applied the snowball sampling technique and semi-structured personal interviews. Each S was interviewed and asked to recommend other experts to be included in the study. 20 Ss were interviewed from the 3 regions who represented diversified professional backgrounds. Each interview was tape recorded and transcribed. The information was itemized and categorized. Taxonomies were then constructed to understand how the respondents perceive the issues, and typologies were established to interpret the data. Findings of the study included the experts' perceptions and ideals of the role of government in regional tourism development, tourism's economic, social, and environmental impacts, tourism marketing, growth of the tourism industry, and whether the tourism ideals should evolve in the long run. It was found that the state government's matching fund prog for regional tourism promotion was popular among the experts who represent the commerce sector, and that government's investment in infrastructure was viewed as imperative. The experts expressed the opinion that tourism contributed to the quality of community life and the environment. They were also favorable to collective marketing. These experts, however, had different perceptions of state-level tourism promotion, zoning practices, the need for future tourism growth in the region, role of nonresident entrepreneurs, and whether tourism ideals should evolve in the long-term future. It was recommended that future studies of tourism ideals be conducted using other networks of experts such as government officials and scholars.

88. WELCH, H.H. Comparison of the Bruce protocol and a continuous ramping protocol with healthy women. MS in Exercise Physiology, 1992, 65 pp. (T. McConnell)

The purpose was to compare the standard Bruce protocol (BP) to a ramping treadmill protocol (RP). Speed and grade for RP were continuously increased at a rate equated to match BP at the end of each 3-min interval (i.e., at minute 6, RP was at 2.5 mph/12% grade). 15 healthy F (age 20-34, mean=28.1 yrs) performed a max exercise test with each of the 2 protocols. The gas exchange anaerobic threshold for BP and RP occurred at 52.3% and 56.1% of VO_{2max} (p=N.S.). The lactate threshold was detected at 56.2% and 56.5% VO_{2max} for BP and RP (p=N.S.). The rate of perceived exertion (RPE) was higher for BP than RP throughout the tests, but the diff was not sig. HR, VO_2, and carbon dioxide output (VCO_2) were higher throughout BP ($p<.05$) but there were no diff in peak values. Blood lactate (LA) was higher ($p<.02$) for BP at minutes 6 and 9. Exercise time was sig reduced ($p<.0001$) during BP (672 vs. 758 sec). The $\%VO_{2max}/\%HR_{max}$ regression equations were similar for BP and RP ($y=1.22x-34$ and $y=1.25x-36.9$, respectively).

89. WILSON, D.B. An evaluation of nature center managers' perceptions of their job responsibilities with regard to educational background, services/ resources offered, number of years as administrator, and budget of the nature center. MS in Recreation and Parks, 1991, 114 pp. (A.R. Graefe)

This study examined the relationships between the nature center managers' perceptions of their job responsibilities in terms of competence in, importance of, and time spent on specific managerial responsibilities with regard to the managers' educational background, amount of yrs as a nature center manager, the services/resources offered by the nature center, and the annual operating budget of the nature center. Management theorist Henry Mintzberg's 3 managerial roles were used as a base for the job responsibilities examined. The questionnaire, designed by the author, was mailed in the spring of 1990 to a total sample of 348 nature center managers throughout the US. 221 usable questionnaires (64 %) were returned. Anal stat included one-way ANOVA, t-tests, and Pearson's r. The stat revealed a variety of sig relationships between the variables educ background, services/resources offered, and annual operating budget with regard to the dependent variables competency in managerial tasks, importance of managerial tasks, and time spent on managerial tasks. There were no sig relationships between the amount of yrs as a nature center manager and the DV competence, importance, or time.

90. YANG, M.C. Travel and culture shock adaptation among Chinese students at the Pennsylvania State University. MS in Recreation and Parks, 1991, 158 pp. (A.R. Graefe)

Despite heightened concern for travel and culture shock experiences of international students by researchers, minimal research has been conducted. The purpose of this study was to examine the relationships between culture shock experiences and demographic factors and criteria of cross-cultural adjustment. A Culture Shock Questionnaire was mailed to the Chinese stdnts at the Pennsylvania State Univ. One-way ANOVA and Pearson r revealed age and academic degree sought are sig related to culture shock on the behavioral scale. Religiosity is sig on the emotional and physical scales. Length of stay has a negative sig r on the overall and behavioral scales. Percentage of leisure time with non-Chinese individuals and participation in local activities are sig on the overall and emotional scales. Academic major, no. of US friends, grades received in the US, and pre-arrival attitude toward the US all are sig on the overall, emotional, and behavioral scales. Leisure time change during the weekend has a negative sig r on the overall, behavioral, and physical scales. Personality is sig on the overall, emotional, and physical scales. Reason for going abroad, previous foreign living experiences, accuracy of expectations about US life, English speaking ability, knowledge of living area, satisfaction with current life, and beginning new leisure activities have a sig relationship with culture shock on all scales.

PORTLAND STATE UNIVERSITY
PORTLAND, OREGON

91. ROBBINS, R.D. A descriptive study of sexual health attitudes and practices among adolescent and young adult male county health department clients. MS in Teaching in Health Education, 1991. (D. Graff-Haight)

The purpose was to look at selected sexual attitudes, beliefs, and sexual health practices among adolescent and young adult M. The study examines adolescent and young adult Ms' sexual development and experiences, contraceptive use, sexually transmitted disease (STD) prevention practices, and, to a limited extent, public health clinic utilization. Ss (n=125) were Ms age 15 to 40, who came into the Clackamas County Health Department for their own appointment or accompanying a sexual partner. Ss were asked to fill out the Men's Health Questionnaire, a 48-item questionnaire covering the aforementioned topics. The results showed that the Ms examined in Clackamas County are similar to Ms elsewhere in the US. The ave age of first intercourse in this pop is 14.8 yrs old, with 54.2% experiencing intercourse for the first time between the ages of 13 and 16. As is also typical of US Ms, 58.8% of the Ss had had sex with multiple partners in the last yr. Of the Ms who indicated they had had more than one sexual partner (n=78), 24.3% had had 5 sexual partners in the last yr. The lifetime no. of sexual partners for 34.3% was 6 to 10. Another 12.8% had 11 to 20 sexual partners; 19.2% had 21 to 50; and 12.8% had more than 50 lifetime sexual partners. In addition, over a third (38.5%) of these Ms reported having

had an STD and 85.9% reported sometimes or never protecting themselves from their partner's bodily secretions. The no. of Ms who used condoms was reported to be 78.3% of the sample, although only 14.0% said they always used protection. These findings indicate expanded efforts in sexuality education are needed in this pop. These efforts need to include comprehensive information on sexual development, initiation into sexual activity, and contraceptive and STD prevention practices.

PURDUE UNIVERSITY
WEST LAFAYETTE, INDIANA

92. BOTHNER, K.E. The development of a video-based motion analysis system. MS, 1992. (C.J. Widule)

Video image processing has become a convenient and powerful tool to represent mvmt. The capability to interface a computer with a video source to perform motion anal makes this technology ideal for fields such as biomechanics. A short turnaround time between filming and the accumulation of data makes video more efficient than cinematography, and the portability enables researchers to collect data in many diff settings. Video anal systems on the market today have two drawbacks, however. First, the cost of fully developed systems may deter some users. Second, the user has little or no input into the software development, making modifications of input parameters, image manipulation processes, and output formats impossible. In this study, a video-based motion anal system was developed with full documentation of each stage of the process, from hardware acquisition to algorithms implemented in the software. With this knowledge, accessibility to this technology will be increased, which should enhance and augment future research in the field.

93. CLARY, J.M. Eating disorders among athletes: Public policy to promote social and individual behavioral change. MS, 1992. (D.R. Black)

Eating disorders constitute a major public health concern. Recent studies, despite contestable design and meas flaws, indicate that the prevalence of eating disorders among athletes is dramatically higher than among either the general pop or coll stdnts. Theoretical models and past lit reviews suggest that societal/environmental factors such as pressures to ultimately perform; prodigious social and monetary rewards for success; and media emphasis on slimness, body shape, and the value of sport in US society all play a crucial role in the etiology of eating disorders among athletes. Public policy as a public health strategy to modify environmental determinants is offered as the primary means to eradicate eating disorders among athletes and to initiate and promote societal as well as individual behavior change. Ways to formulate and implement athletic policy are provided and recommendations for future action are specified.

94. DAMSON, R.L. The effect of daily bean ingestion on the lipid profiles of normocholesterolemic college students. MS, 1991. (G.C. Hyner, R.M. Lyle)

Determining effective meas to reduce the risk factors for coronary heart disease (CHD) early in life is imperative. Dietary modifications have been shown to beneficially alter elevated chol levels, a primary risk factor for CHD. The purpose of this study was to examine the effect of daily bean ingestion on the lipid profiles of normocholesterolemic coll stdnts. Sedentary stdnts from Purdue Univ volunteered to participate in a bean intervention gp (BG) or a control gp (CG). The BG Ss (n=13) added 1/2 cup of beans (in the form of soup) to their usual meal selection daily for 6 wks. The CG (n=19) remained sedentary and maintained their usual diet. Two finger-stick blood samples were collected and averaged for both BG and CG Ss at baseline and end of study. Serum total chol (TC), triglycerides (TG), and high-density lipoprotein chol (HDL-C) levels were assessed by the Kodak-DT60 Cholesterol Analyzer. Very low-density lipoprotein chol (VLDL-C) and low-density lipoprotein chol (LDL-C) were estimated. Ss in both gps completed a step test to assess fitness level pre and post. The Nutrition Profile Plus questionnaire was admin to compare general health, activity, and dietary practices pre and post. A one-way ANOVA indicated that baseline TC differed sig ($p<0.01$) between BG and CG Ss. Baseline dietary intakes were not diff. After ANCOVA, HDL-C differed sig ($p<0.0001$), with higher levels observed in the BG. A paired t test revealed sig diff in % of calories from protein, total fat, saturated fat, carbohydrate, and fiber, with greater in protein, carbohydrate, and fiber ($p<0.0001$) and less in total and saturated fat ($p<0.0001$) in the BG. Grams of protein, carbohydrate, and fiber increased in the BG while grams of total and saturated fat did not change. Results indicated that 6 wks of daily bean ingestion had little effect on the serum lipid profiles.

95. ISOGAWA, H. The economic effects of government assistance in commercial resort development: A case study of French Lick, Indiana. MS, 1990. (W.F. Theobald)

The economic effects of govt assistance to a hotel in French Lick, IN were assessed by a cost-benefit anal. Four govt assistance prog were recognized: the EDA/CDBG loans (financial incentives), the French Lick Municipal Airport (infrastraucture provision), the Maple Street Project (attraction provision), and the local Chamber's activities (promotion). Documentary anal and interviews were employed in order to determine cost and benefit items and the effects of these items. Cost-benefit anal showed that the effects of the EDA/CDBG loans just reached a break-even point in 1989 though the town could not attain the primary objective (creation of new jobs). Another cost-benefit anal revealed that operation of the airport resulted in net loss in the year 1989. However, these assistance prog were justified in terms of effects when we consider other benefits such as secondary benefits of revolving loan funds (the EDA/CDBG

loans) and reduced travel cost/time and emergency/recreation use (the airport). Two local promotional prog (Maple Street Project and local Chamber's promotion) were recognized as potential forms of govt assistance to the hotel though these prog did not cause tangible effects on the hotel. These govt assistance prog revealed several admin problems. It is suggested that govt should consider 4 possible solutions: establishment of goals and objectives, commitment to prog, adoption of monitoring systems, and insertion of periodical reviews, in order to maximize benefit/cost ratios of assistance prog.

96. MILLER, M.K. The effectiveness of repeated submaximal concentric exercise and heated whirlpool in the treatment of delayed onset muscular soreness. MS, 1991. (D. Corrigan)

The purpose was to examine the effectiveness of increasing muscle temp using a warm whirlpool and exercise when treating delayed muscle soreness. 22 M coll stdnts were randomly assigned to 1 of 3 treatment gps consisting of exercise, whirlpool, and a control gp. Meas of subjective pain levels, thigh circumference, quadriceps flex, and isometric quadriceps strength at 90° and 135° of extension were used to determine treatment effectiveness. These meas were taken before and 24, 48, 72, and 96 hrs after induced soreness. Ss ran downhill on a treadmill to initiate soreness. This protocol was effective in inducing soreness, decreasing quadriceps flex, and decreasing quadriceps strength sig from baseline meas, but failed to increase thigh circumference sig from time 0 to 72 hrs post soreness induction. It was found that time had a sig effect on quadriceps strength, flex, and soreness. Ss in the exercise gp had sig less soreness than the control gp 96 hrs after soreness was induced, but the 2 treatments had no effect on quadriceps strength or flex. The results indicate that the perceived soreness symptom in delayed muscle soreness can be reduced by increasing muscle temp.

97. PACZOLT, T.M. Safety belt knowledge, attitudes, and behaviors among minority adolescents. MS, 1991. (M.K. Tappe)

The purpose was to meas knowledge, attitudes, and behaviors that govern safety belt use among minority adolescents. Attitudes and knowledge were assessed by utilizing segments of previously used instruments (Mori, 1988; Werch, 1988). Data were collected from 288 black adolescents from 2 urban midwestern HS. The survey instrument included demographic information, driving experience, safety belt use, accident experience, accident injury/loss experience, law/enforcement attitudes, enforcement-related safety belt use behavior, safety belt knowledge, perceived law understanding, and the extent to which Ss favored or disfavored safety belt laws. The stat anal utilized were descriptive stat, principal components factor anal, Cronbach's alpha reliability anal, Pearson's product-moment r, ANOVA, and independent sample t-tests. Based on these analyses, it can be suggested that there are no sig gender diff in

safety belt use. A strong relationship, however, was found between sig others' safety belt use and personal safety belt use, knowledge and total safety belt use, and perceived law understanding and safety belt use. Ss were more likely to wear safety belts with their mother/step mother/female guardian than with their father/step father/ male guardian. These results lead to the suggestion that Ss' knowledge about safety belts is less important than their perceived understanding of the safety belt laws.

98. SILVEY, C.M. Influence of menstrual cycle phase and oral contraceptive use on cardiovascular reactivity in women with a parental history of hypertension. MS, 1991. (R.M. Lyle)

The purpose was to compare CV reactivity across the follicular and luteal phase of a regular menstrual cycle in oral contraceptive users (OC) and nonoral contraceptive users (NOC) with a parental history of HBP. In a subset of the sample, 24-hr ambulatory BP and HR were compared to baseline BP and HR, as well as CV reactivity to laboratory stressors. 20 regularly cycling, normotensive F (18-41 yrs) with at least 1 HBP parent reported to the laboratory 2 times per phase for BP and HR meas (once for baseline and once for the stress protocol in each phase). Trait anxiety was meas with a Cognitive and Somatic Anxiety Questionnaire during the first session, and State Anxiety was meas prior to each experimental session with a Subjective Units of Distress Scale. There were no diff between gps with respect to age, ht, wt, trait or state anxiety. Although the NOC had lower BP and HR than OC during baseline meas in both phases, diff did not reach sig. A repeated ANOVA revealed that systolic BP, diastolic BP, and HR increased from baseline to stress conditions. BP response to isometric handgrip was greater than BP response to the mental arithmetic task. There was no diff in HR response to stress conditions. There were no diff in CV reactivity between or within gps across phases of the menstrual cycle. This study supports the hypothesis that CV reactivity does not vary across phases of the menstrual cycle in NOC and OC. Thus it may be unnecessary to control for this factor in future psychophysiological investigations involving F.

99. SMITH, M.A. Reducing alcohol consumption among university students: Recruitment and program design strategies based on social marketing theory. MS, 1992. (D.R. Black)

Attracting participants and developing appealing comprehensive alcohol reduction prog is an exigent priority due to the serious physical and emotional consequences of drinking. A systematic probability sample of 67 stdnts, representative of a large midwestern univ and the nation, completed a survey for improving recruitment and design of alcohol reduction prog specifically for univ stdnts. The results indicate that recruitment can be enhanced by providing a flexible, convenient, low-cost prog that encourages friends' participation, communicating alcohol-related risks, and offering univ credit or refunds as

participation incentives. The design of alcohol reduction prog can be optimized by emphasizing positive outcomes from reducing alcohol consumption, improving quality/quantity of alternatives to social atmosphere connected with alcohol, and soliciting respected opinion leaders to communicate alcohol reduction messages. Audience segmentation data are provided for targeting specific subpopulations based on alcohol consumption behavior, gender, and age.

100. SONG, S. The effects of instructions and movement reversals on the accuracy and kinematics of a rapid sequential tapping movement. MS, 1992. (H. Zelaznik)

The study was designed to investigate the effects of task objectives and constraints on kinematic properties of a rapid sequential mvmt. Ss were required to move a stylus from a home position to successively land on 3 targets. The mvmt was uni-directional or involved a reversal. Demands for speed and accuracy of performance of the first segment were constant with performance objectives of the 2nd and 3rd segments of the task varied across 3 instruction conditions. 3-dimensional mvmt of the stylus was recorded by 2 Watsmart cameras. Ave mvmt time, time of peak velocity in the X dimension, time of peak negative velocity in the Z dimension, and time of zero velocity of the entire mvmt sig increased with increased demands for accuracy, while peak velocity in either the X or Z dimension increased with increased demands for speed for varied instruction portions of the task across 3 instruction conditions. In addition, ave value of peak velocity in the X dimension, time of peak velocity in the Z dimension across 3 segments and the 3 instruction conditions were less in the reversal mvmt condition than that in the uni-directional mvmt condition. Ave MT, time of peak velocity in the X and Z dimensions, time of peak negative velocity in the Z dimension, and time of zero velocity in the Z dimension of the 1st segment increased with increased demands for accuracy for the 2nd and 3rd segments. Mean value of peak velocity in the X dimension, the mean value of peak positive and negative velocity in the Z dimension of the 1st segment in either reversed or non-reversed mvmt condition decreased with increased demands for accuracy across the 3 instruction conditions. The findings suggest that the execution of the whole rapid sequential mvmt was affected by varying both the instructions to the Ss and mvmt reversals. These results lead to the inference that either uni-directional or reversal mvmts are governed as a single unit, rather than each segment governed separately.

101. STOKLOSA, S.M. Home court advantage in men's and women's Big Ten intercollegiate basketball. MS, 1991. (J. L. Duda)

The phenomenon of home court advantage (HCA) was studied to determine its existence and extent in Big Ten M and F intercoll basketball. Archival data were collected for a period of 12 yrs (1979-1990) across the M teams and for a period of 9 yrs (1982-1990) over the F teams. A secondary purpose was to

calculate ability meas for each team over each season to determine the existence of team diff in winning percentages and the effect of game location on HCA. Diff in gender in relation to the HCA were also assessed. The general linear model was used to compute the HCA in points. The Bradley-Terry model was used to generate numeric meas of ability and calculate the probability of the home team winning. There was a sig HCA for M and F intercoll basketball. The ave points due to the HCA were 4.5. There were no sig diff between M and F in the HCA winning percentages. High ability home teams had the highest probability of winning at home when competing against lower ability visiting teams. No inter-team variability was found in points due to the HCA. There was also no time of season effect for the HCA.

102. WISNER, D.M. Determination of the precision, accuracy, and resolution of a video-based motion analysis system. MS, 1992. (C.J. Widule)

The purpose was to develop a systematic procedure to determine the precision, accuracy, and resolution of video-based motion anal system, and use that procedure to determine the precision, accuracy, and resolution of a commercially available system—the Peak 4 system. A board containing stationary markers arranged in a rectangle about a center marker was used to meas static precision and accuracy. A disk rotating at 59.6 revolutions per min with a marker at its center and a marker at its radius was used to meas dynamic precision and accuracy. Resolution was meas by observing the output from the above tests. The error in all cases was below 2.0%. The smallest error belonged to the static precision and the greatest to the dynamic accuracy. Based on the procedures used, a general protocol was established for determining the precision, accuracy, and resolution of any video-based motion anal system.

SAN JOSE STATE UNIVERSITY **(B. SHIFFLETT)**
SAN JOSE, CALIFORNIA

103. HEPPE, R.A. The kinematic variables related to the efficiency of throwing: Football. MA in Physical Education, 1992, 90 pp. (G.G. Evans)

Specific to throwing a football, limited data are available to compare similarities or diff among the various types of possible passes or between the other overarm throwing/striking skills. This study reported the kinematic variables associated with throwing a football and attempted to gain insight into the relationship between lateral stride foot placement and accuracy. Four Div I-A quarterbacks were used. The kinematic variables calculated were similar to those in recently published articles with the exception of hip and shoulder angular velocity. Hip and shoulder mvmt may be subject to individual diff within the overarm throwing pattern. No r was found between lateral stride foot placement and

accuracy, although a recommendation to increase this distance (approx 8 inches in this study) was made to allow the net force to be translated forward in a more linear fashion and to allow for more complete hip rotation.

104. YAN, J.H. Age-related changes in the release point, velocity, and acceleration in girls' overarm throwing performance. MA in Physical Education, 1992, 80 pp. (V.G. Payne)

60 untrained Caucasian girls aged 2 to 7 yrs volunteered to be Ss in the research project. Each age gp (2-3, 3-4, 6-7 yrs) consisted of 20 Ss. To determine the diff in the release point of girls' overarm throwing performance, all Ss were videotaped in the Biomechanics Laboratory at San Jose State Univ. The Peak Three-Dimensional Motion Measurement System was used to examine the spatial position of release point, the velocity, and acceleration at release. One-way ANOVAs indicated sig age-related diff ($p<.05$) in the 3 DV. R analysis revealed low relationships between release point and the body wt ($r=.20$), ht ($r=.19$), and arm span ($r=.19$). The findings suggest that under the condition of no training experience in throwing, age is a major factor influencing the release point in girls' overarm throwing performance.

SLIPPERY ROCK UNIVERSITY **(F.J. BRANNON)**
SLIPPERY ROCK, PENNSYLVANIA

105. BALDWIN, S.B. An evaluation of the physical fitness effects of a high school aerobic dance curriculum. MS in Exercise and Sport Science, 1991. (G. Puchar)

34 Ss (13-18 yrs) participated in this study to evaluate the physical fitness effects experienced by engaging in the North East HS aerobic dance curriculum in North East, PA. The experimental (aerobic) gp met 5 days a wk, 50 min per session, for 16 wks. 24 experimental Ss were dropped because they exceeded 3 absences which the study defined as a limit. The control gp was not permitted to take PE courses during the research period. Control Ss were selected randomly across 5 grade levels (8-12), out of study hall periods. Pre and postdata were collected on 5 fitness parameters: CV endurance, flexibility, muscular endurance, muscular strength, and body comp. The following tests were utilized: a 5-min Astrand-Rhyming Step-Test, a sit and reach test, a one-min modified sit-up test, a hand grip dynamometer test, and skinfold meas with Lange skinfold calipers. Results indicated only sig improvement in muscular strength from aerobic prog participation. No sig improvements were demonstrated in CV endurance, flexibility, muscular endurance, or body comp.

106. KIRCHER, W.T. Effects of training with and without the lung trainer upon lung function and cycling performance. MS in Exercise Science, 1990, 49 pp. (G.S. Pechar)

8 Ss, mean age 24.3 (range 19-34 yrs), completed the 6-wk training prog either with or without the lung trainer. A Vanguard Electronic Spirometer evaluated respiratory function while the combination of Racermate Piggyback windload simulator and Cateye Solar cyclocomputer determined 5 mi cycling performance. Training sessions lasting approx 1/2 hr were conducted 3 days per wk. On the 1st day, a progressive series of 6 2-min intervals were performed at 110% of their ave 5 mi windload speed. On the 2nd day, an aerobic ride was interspersed by cycling jumps of 10 sec. On the final day of each wk, 2 1-mi and 1 2-mi timed trials were performed. The diff between each S's pre and post training respiratory and cycling performance results were used in the stat anal. The results of the Mann-Whitney Test indicated all respiratory and cycling performance meas displayed nonsig diff between the control and exp gps. It was concluded that usage of the lung trainer has no effect upon resting lung function and exercise performance.

107. LEIGHT, J.M. A study of the relationship between personality and position selection for female collegiate softball players. MS in Physical Education, 1991.

The relationship between personality and position selection for F coll softball players was investigated using the Myers-Briggs Type Indicator (MBTI). A total of 120 varsity softball players from 10 NCAA Division II level univ from the PA State Athletic Conference responded to the MBTI. Players were placed into 1 of 3 gps, determined by the position they played. These gps were: (a) pitchers, catchers, and shortstops; (b) infield positions of first base, second base, and third base; and (c) outfield positions of left field, center field, and right field. Each gp was examined utilizing the 8 personality preferences of the MBTI. 4 separate two-way chi square tests were performed for the personality preferences of extroversion versus introversion, sensing versus intuition, thinking versus feeling, and judging versus perceiving. No sig was found for any of the chi square tests. The personality type of ESFP was the most common personality for all gps.

108. RICHTER, K.W. A comparison of the cumulative grade-point averages of male scholarship athletes to male nonathletes at Clarion University of Pennsylvania. MEd in Sports Study, 1989, 65 pp. (J.L. McKeag)

The study consisted of M scholarship athletes and nonathletes who entered Clarion Univ of PA in 1980, 1981, and 1982, and who graduated within 5 yrs. The 59 student-athletes who qualified for inclusion in the study by meeting the established criteria participated competitively for 4 yrs in one of the 4

scholarship sports at Clarion Univ. The sample of the 59 M nonathletes was matched within 10 points of the composite SAT score to each of the 59 M athletes. A dependent t-test for matched pairs was utilized to analyze the diff between the mean cumulative grade-point averages of the student-athlete gp and the mean grade-point averages of the nonathlete gp. The results indicated no sig diff between the 2 gps when matched by the SAT. The student-athletes' mean GPA was 2. 617, while the nonathletes' mean GPA was slightly higher at 2.732. A chi-square test indicated that distribution of academic majors selected by athletes demonstrated no sig diff from those selected by nonathletes.

109. STEVENS, W.S. A comparison of the effects of depth jumping and regular jumping on the vertical jump performance of male high school students. MS in Physical Education, 1992, 39 pp. (G.S. Pechar).

32 M HS stdnt were randomly assigned to 1 of 2 gps. Gp 1 participated in a depth jump training prog twice a week for 6 wks. Gp 2 participated in a regular jump training prog twice a week for 6 wks. A jump-and-reach test was admin to all Ss before and after the training period. A t-test for independent samples was conducted for stat sig diff between posttest means of the 2 gps. The diff between the posttest means was not stat sig. Dependent t-tests were used to test the diff between the pretest and posttest means within gps. Diff were not stat sig. It was concluded that depth jump training twice a wk for 6 wks had no more effect on vertical jump performance than regular jump training twice a wk for 6 wks.

110. STEWART, R.L. A study of the perceived opinions of participants in the Pennsylvania coaching certification program, 1984-1980. MS in Physical Education, 1989, 81 pp. (W.L. Herman)

135 participants (73 M, 62 F), age 20-40 yrs, who completed the PA coaching certification program at Slippery Rock Univ were surveyed by means of a questionnaire to determine the importance of a certification prog on interschol athletics. Descriptive analysis was performed on data collected from 52 respondents (25 M, 27 F). Results indicated that 86% of the respondents were satisfied with information acquired through the prog. 64% of the respondents indicated that the present professional preparation status of interschol coaches needs to be improved. 86% were in favor of reinstating the prog and 87% indicated a desire to recommend the prog to prospective coaches. The respondents recommended that the 6 coaching certification standards were necessary for a quality prog. Furthermore, the respondents indicated that the certification of all coaches would improve the safety aspects of all athletic prog.

111. TARDIE, G.B. The effects of body segment lengths and head position upon sit and reach flexibility performance. MS in Exercise Sciences, 1992, 63 pp. (G.S. Pechar).

The purpose was to determine the relationship between sit and reach performance using both flexed and neutral head positions in HS age M and F. Diff in sit and reach flexibility between the flexed and neutral head positions between M and F were investigated. Ss were 50 M and 50 F ranging in age from 14-19 yrs enrolled in regular PE at Lake Region HS, Naples, ME. Ss were tested performing the sit and reach test using a flexed (FL) and neutral (NE) head position. Trunk length, arm length, and leg length were determined to investigate the relationship of body segment lengths and sit and reach performance. Ss performed 3 sit and reach trials for each head position. Results demonstrated sig greater sit and reach performance for M and F using the neutral position. There were nonsig relationships between trunk length, arm length, and leg length for F. There were nonsig relationships between arm length and leg length for M; however, there was a sig relationship between trunk length and sit and reach performance. Nonsig relationships were reported between M and F in sit and reach performance (M X=30.15cm and F X=32.74cm). Results indicate that limb length is not a sig factor in sit and reach performance, though trunk length is a sig factor influencing sit and reach performance in M. Head position was also found to be a sig factor influencing performance.

112. WORKMAN, G.J. Sex role perceptions and defense mechanisms of female athletes. MS in Physical Education, 1991, 120 pp. (R. Braden)

The problem was to analyze relationships between sex role perceptions and defense mechanisms among 60 coll athletes in traditionally appropriate and traditionally inappropriate sports for F. Data were collected by admin of Bem Sex Role Inventory and Defense Mechanisms Inventory. Results were analyzed by 5 one-way ANOVAs and an independent t-test; conclusions were drawn. No sig diff were found between sex role perceptions of athletes involved in traditionally appropriate and traditionally inappropriate sports. Also, athletes who competed in traditionally appropriate sports were more likely to use a "turning against self" defense mechanism. In addition, a sig diff was found in defense mechanisms based on sex role perception. Those athletes with high masculinity scores preferred an external, "turn against object" defense mode, while those with high femininity scores were more likely to employ an internal and "turn against self " defense in stressful or confrontational situations.

SOUTHEAST MISSOURI STATE UNIVERSITY
CAPE GIRARDEAU, MISSOURI

113. OTTE, R.A. Effects of isotonic and plyometric training on upper body power of ninth and tenth grade males. MA in Secondary Education with emphasis in Physical Education. 1989, 80 pp. (J.E. Schneider)

The purpose was to determine if a sig diff in power gains existed between a wt training prog and a wt training prog combined with upper body plyometrics.

The Ss included 21 M 9th and 10th grade stdnts from New Madrid County Central and 41 M 9th and 10th grade stdnts from Cape Central HS. Ss were randomly assigned to a wt prog or a wt prog combined with upper body plyometrics. Ss were admin the seated medicine ball put to meas upper body power. Ss participted in 10 wks of wt training on Mondays, Wednesdays, and Fridays. During wks 7-10, in addition to the routine workouts, Ss participated in additional training on Tuesdays and Thursdays. The investigator concluded that the exp gp showed a sig gain in power compared to the control gp. The combined Cape Central gps showed a sig gain in power compared to the New Madrid County Central gps.

114. OTTE, S.F. The relationship between parental attitudes toward physical activity and the present fitness state of third, fourth, and fifth grade children. MA in Secondary Education with emphasis in Physical Education, 1989, 93 pp. (R.F. Kirby)

The purpose was to examine the relationship between parental attitudes toward physical activity and the fitness of children. Ss were 40 children in grades 3, 4, and 5 at Parma Elementary and their parents. The children were admin the Physical Best Test and their parents completed the Kenyon Attitude Toward Physical Activity Inventory. The Pearson Product Moment r method was used to anal the data. The results were as follows: 1) There was no relationship between the parents' attitudes toward physical activity and their children's fitness state. 2) There was no relationship between the parents' attitudes and their daughters' individual fitness subtest scores. 3) There was no relationship between the mothers' attitudes and their sons' individual fitness subtest scores. 4) There was a moderate relationship between the fathers' attitudes and their sons' body comp and flex. It was concluded that the parents did not influence the children's physical fitness.

SPRINGFIELD COLLEGE
SPRINGFIELD, MASSACHUSETTS

115. BEIDLEMAN, B.B. Energy balance and the components of total daily energy expenditure in endurance trained and untrained women. MS in Movement Science, 1991, 233 pp. (J. Puhl)

Total daily energy expenditure (TDEE), total daily energy intake (TDEI), and body wt (BW) were evaluated for 3 consecutive days in eumenorrheic long distance runners (n=10) and untrained F (n=10) comparable on the characteristics of age, ht, BW, and fat free wt (FFW). TDEE was estimated from individual HR/oxygen uptake curves combined with the use of a 24-hr HR monitor while 3-day dietary records were used to estimate TDEI. The wt loss of runners (loss=-.23 $lb \cdot d^{-1}$; -796 $kcal \cdot d^{-1}$) accounted for the energy input/output imbal-

ance (TDEI=2165 kcal·d^{-1}; TDEE=2952 kcal·.d^{-1}). The untrained F lost more wt than expected (loss=-.18 lb·d^{-1}; -616 kcal·d^{-1}) given their TDEI (1842 kcal·d^{-1}) and TDEE (2225 kcal·d^{-1}). The runners did not consume sig more food than the untrained F but they exhibited a sig higher energy expenditure. The two gp were comparable in total carbohydrate and fat intake but the runners consumed sig more total and per kg BW protein while the untrained F had a sig higher % of fat in their diet. The resting metabolic rate (RMR) was sig higher in the runners when expressed per kg BW (3.39 vs 2.95 ml·kg^{-1}·min^{-1}) and per kg FFW (4.15 vs 3.77 ml·.kg FFW^{-1}·min^{-1}). There was no sig diff in the thermic effect of the test meal between the trained runners and untrained F when expressed as total integrated energy increase or as a % of the kcal consumed. The calculated thermic effect of activity was sig higher in the trained runners reflecting their larger amount of activity due to training. There was no evidence for the existence of a negative energy balance in this gp of regularly menstruating runners.

116. BROWN, D. Predicting blood pressure from activity, fitness, and body composition of borderline hypertensive individuals. MS in Movement Science, 1991, 77 pp.

The activity level, fitness level (VO_{2max} & PWC) and body comp (body mass index [BMI], lean body mass [LBM], fat wt, and % fat) relative to BP were examined in 40 elderly (69±6 yr) borderline HBP Ss. Resting systolic (SBP) and resting diastolic (DBP) BPs were meas with a random zero sphygmomanometer. Activity was assessed by the Stanford Physical Activity Questionnaire. Fitness was assessed by graded bicycle testing. Body comp was assessed by bioimpedance and mathematical equations. Multiple regression anal was used to anal the data. Regression determined the variance (r^2%) in SBP (143±23) and DBP (75±12) was explained by activity (2936±794 kcal·wk^{-1}), fitness (VO_{2max}=22±7 ml·kg^{-1}min^{-1} & PWC=326±172 kgm·min^{-1}) and BMI (26.7±4.1 kg/m^2). Rs between SBP and DBP vs activity, fitness, and BMI were:

	Activity		*VO_{2max}*		*PWC*		*BMI*	
	r	*r^2%*	*r*	*r^2%*	*r*	*r^2%*	*r*	*r^2%*
SBP	.02	0.0	.23	5.3	-.28	7.8	.30	9.0
DBP	.18	3.2	-.07	0.5	-.12	1.4	.36	13.0

The combination of PWC and BMI sig improved the multiple r. These were r=.41 (16.8%) for SBP and r=.37 (13.7%) for DBP. These results suggest both SBP and DBP are influenced independently by fitness (PWC) and BMI in an elderly pop.

117. CAMPBELL, M. Rating of college courses by Springfield College elementary physical education teacher preparation program graduates. MS in Physical Education, 1991, 122 pp. (J. Robertson)

The study was conducted to determine which 5 course areas required in the ele PE tchr prep prog at Springfield Coll have been useful to past grads during their teaching careers. Ss were past grads from the yrs 1980-1989 who had experience in teaching ele PE. The measuring instrument was a Likert-style rating scale. The course areas of methods, general skills, ele skills, sciences, and practica were rated as to their influence on the tchrs' teaching methods, curr selection, adjustment to their teaching responsibilities, and stdnts' learning. A 5x4 factorial ANOVA with repeated meas on both factors was conducted. The grouping entitled science courses was consistently rated as the least influential course area in terms of benefiting any of the tchr functions. Practica experiences were rated as the most influential course area for all teacher functions with the exception of curr selection. The course area entitled ele skills had the most influence on the tchrs' curr selection.

118. FALVO, L. The mechanical and metabolic differences between walking and running at various speeds. MS in Movement Sciences, 1991, 73 pp. (J. Scheuchenzuber)

Ss for this study were 12 coll age M. Each S walked and ran on a motorized treadmill at 3.7, 4.5, and 5.3 mph. The order of testing was randomized and Ss were placed in 1 of 4 gps. Expiratory gases were collected using a Tisot spirometer with an open circuitry method. Gases were anal during the last 30 sec of each trial. Metabolic consumption was calculated for each S at each testing trial. Cinematographic recording of each S was conducted during the last 30 sec of each 5-min trial period. Ss were filmed at 50 frames per sec using Kodak Ektachrome Type G super8 film with an ASA rating of 160. Positional data were extracted from the film by a GAF/BAR Mark II Graphics Calculator. FORTRAN prog were written to calculate potential and kinetic energies of segments. A 2x3 ANOVA with repeated meas design was used to determine if sig diff in metabolic costs for the Ss walking and running at 3 speeds existed. A 2x3 ANOVA with repeated meas was also used to determine the sig of mechanical work diff of the 2 conditions at 3 speeds. There was no sig ($p>.05$) diff in the mean absolute mechanical energy values among the 3 speeds. Post hoc Neuman Keuls test was used and it was determined that there was a sig ($p<.05$) diff between the values for the slow and medium velocities, and between the slow and fast velocities, but not between the medium and fast velocities. There was a sig ($p<.05$) diff in the metabolic cost values among the conditions of walking and running. There was a sig ($p<.05$) diff in metabolic cost among the 3 predetermined speeds. There was a sig ($p<.05$) interaction between speed and condition.

119. FANG, J. Prediction of the world men's best performances in high jump and long jump by the top average performance. MS in Physical Education, 1991, 99 pp. (B. Jensen)

Previous researchers have focused on prediction of the world records or the best performances by using time-series anal and regression anal from world records or best performances themselves. The researcher in this study examined some of the ignored factors which affect athletic performances and set up some new predictive models for the world M's high jump and long jump events. The relationship between the characteristics of the top ave performance and the rate of increase in the next yr was obtained to determine the importance of such factors in producing the best performance of the next yr. Performance gps were cataloged into top 1, top 10, top 20, and top 50. Certain predictive models were established to predict the best performance in the next yr by the best performance and the SD of the top ave performance in the current yr. Predicting by the top 10 and top 20 gps had a better predictive result than predicting by the other gps in the high jump event. Prediction of the long jump performance had more predictive errors because of the irregular trend. The conduct of this study enabled the researcher to develop a more realistic predictive model in which a lower or a higher score than the previous year's can be predicted if most of the top performances are deviated from or close to the mean score.

120. LEE, B. A comparison of standing posture between female junior high school students in Hong Kong with and without ballet training. MS in Physical Education, 1991, 117 pp. (M. Rau)

66 F junior HS stdnts (ages 12-16) from junior HS in Hong Kong volunteered to be the Ss. Stdnts in the dance gp had received ballet training in private dance schools for 3 or more yrs. Stdnts in the nondance gp had no previous dance training. Pictures of the Ss in a standing position were taken from the lateral and posterior view. Standing postures of the Ss assumed in the pictures were rated by the researcher according to the Posture Rating Chart found in the New York State Physical Fitness Test. Rating scores of Ss in the dance and nondance gp were compared by the Mann-Whitney U stat anal. Stdnts in the dance gp had sig ($p<.05$) better standing alignment than stdnts in the nondance gp in the following areas: total overall posture, total anteroposterior posture (lateral views), and posture of the neck, chest, shoulders, upper back, abdomen, and lower back segments (all from lateral view). For the total lateral posture (posterior view), posture of the trunk segment (lateral view), and posture of the head, shoulders, spine, and hips segments (all from posterior view), no sig ($p>.05$) rank diff were found between the dance and nondance gp.

121. MAURO, B. A comparison of orthostatic tolerance and fluid loading in trained and nontrained subjects during simulated weightlessness. MS in Exercise Physiology, 1991, 131 pp. (V. Paolone)

The researcher examined the effect of a fluid countermeasure (CM) and no CM on the orthostatic response of 9 trained (T) (mean = 62.72 ml/kg/min) and 9 nontrained (NT) (mean = 43.47 ml/kg/min) Ss during a 15 min passive stand after 60 min of -6° head down tilt (simulated weightlessness). Ss were first tested for aerobic fitness using the Bruce protocol. Orthostatic response was tested twice, with CM and without CM, with a one week waiting period between each test. Fluid ratio was 1 L of isotonic saline solution to every 70 kg of BW. Sodium chloride tablets and water were orally administered separately (1 g tablet: 114 ml of water) to mimic a .87% isotonic solution. No attempt was made to determine the sodium content of the blood and fluid in the stomach before fluid loading. The CV Index of Deconditioning (CID) was used to determine orthostatic tolerance. The first 5 min of the 15 min passive stand test were used for analysis. Results of a 2x2 repeated meas ANOVA indicated no sig ($p>.05$) interaction between fitness level and CM with respect to CID was observed. It was concluded that no diff exists in orthostatic response in aerobically trained individuals when compared to nontrained individuals and also that no positive effect of a fluid CM was present in either gp.

122. MILLARD, L. Gender differences in overt coaching behaviors of high school soccer coaches. DPE, 1992. (G. Brockmeyer)

Ss in this study were 29 M and 29 F HS varsity and junior varsity soccer coaches. Each coach's behavior was recorded for one complete contest during the middle of the competitive season through the use of the Coaching Behavior Assessment System (CBAS) (Smith, Smoll, & Hunt, 1977). The 10 CBAS scores for M and F coaches were compared with a MANCOVA with stat control for yrs experience coaching, past athletic participation, and age. The M coaches in the study were found to be sig older ($p=.001$) than F coaches, while F had sig ($p=.05$) more past experience participating as athletes than did M. When results were adjusted for diff in yrs experience coaching, past athletic participation, and age, M coaches were found to engage sig more frequently in "Keeping Control" ($p=.001$) and "General Technical Instruction" ($p=.04$) and sig less frequently in "General Encouragement" ($p=.04$) than F coaches. While these results are consistent with other studies, caution is expressed relative to their interpretation in light of cultural diff which may exist among M and F.

123. PASCHALL, M. An interpretive qualitative study of the meaning of play in physical activity. MS in Physical Education, 1992. (J. Genasci)

The purpose was to reveal and describe the meaning of play that is shared by undergrad PE majors. The secondary focus was to determine if the Ss participated

in what they deemed to be play. Ss were undergrad PE majors at Springfield Coll who were volunteers recruited from the PE major classes. The requirements for participation were to have participated in both varsity and intramural sport prog at either or both the HS or coll level. Only recruits who had not enrolled in either a philosophy of sport or related class were used. After completing a life-history questionnaire the Ss were interviewed 3 times over approx a 6-wk period. An interview guide was used in an unstructured interview format. A review of the discussion in the previous interview initiated the 2nd and 3rd interview sessions. Following the interview the researcher listened to the tape of the interview while reviewing notes. Questions and topics for discussion in the subsequent interviews were developed during this review procedure. Constructs and interpretations were cross-checked with the Ss throughout the interview process. Typologies and constructs developed from the data of each S were presented. Synthesis of the data from all Ss supported the development of 5 concepts: (a) play is fun and enjoyable, (b) there is a wide variability as to what is called play, (c) there is variability as to the feelings of the participants during play, (d) all of the Ss participate in and enjoy play, and (e) play has the characteristics of freedom or free choice.

124. RUAN, N. Sport achievement orientation of male and female intercollegiate athletes, intramural athletes, and nonathletes. MS in Physical Education, 1991. (M. Murray)

The purpose of this study was to examine whether there were gender diff in sport achievement orientation of varying levels of sport participation. 330 undergrad stdnts, 165 M and 165 F, were selected for the study. Among those Ss, there were 110 intercoll athletes, 110 intramural athletes, and 110 nonathletes. The Sport Orientation Questionnaire (Gill & Deeter, 1988) was utilized to meas sport specific achievement orientations of competitiveness, win orientation, and goal orientation. The questionnaires were admin in the classroom setting during the regularly scheduled instructional sessions. 3 separate 2x3 (gender x levels of sport participation) independent gps ANOVAs were used to detect the diff in competitiveness, win orientation, and goal orientation of M and F intercoll athletes, intramural athletes, and nonathletes. Results revealed that M had higher ($p<.05$) levels of competitiveness and win orientation than F. Intercoll athletes tended to be more ($p< .05$) competitive and win oriented than nonathletes. Further, gender diff were most evident in the levels of competitiveness with M scoring higher than F. However, goal orientations were not ($p>.05$) differentiated between M and F. It is suggested that coaches be aware of such gender diff and similarities, and organize sport activities to emphasize and enhance personal goals for young adults.

125. SANTANELLO, T. Gender related differences in performance levels of triathletes. MS in Physical Education, 1992, 98 pp. (M. Murray)

The researcher examined M and F triathletes to determine how triathletes of specific gender classifications differ in performance levels in 3 events. The Bem Sex Role Inventory (Bem, 1974) was admin to 75 F and 308 M volunteer triathletes who completed the June 1991 US Triathlon Series race in Baltimore, MD. To analyze the mean diff in performance levels, separate 2x4 ANOVAs with both independent gps factors were used to analyze mean diff for M and F among the gender classification gps. Triathletes who were classified as high performers scored below a mean minus .5 SD from other competitors. To anal the diff in the no. of high performers, 3 separate 2x4 chi-square anal were utilized. M were sig ($p<.05$) faster than F in the bike and run, but not from the F in the swimming event. F Ss classified as feminine were sig ($p < .05$) slower swimmers than the M classified as feminine. Feminine M and F in the biking event were sig ($p<.05$) slower than the other classification gps. The numbers of high performers who were M or F were similar across classification gps for all 3 events except that there were sig ($p < .05$) more undifferentiated M classified as high performers than undifferentiated F for the biking event.

126. ZHANG, Q. Gender differences in peak blood lactate concentration and blood lactate removal following strenuous exercise. MS in Exercise Physiology, 1991, 163 pp. (J. Puhl)

The purpose was to determine gender diff in peak blood lactate concentration and blood lactate removal rate following strenuous exercise. 17 untrained physically active M and 17 F coll stdnts aged 19 to 28 yrs participated in this investigation. The mean value of VO_{2max} ($ml \cdot kg^{-1} \cdot min^{-1}$) in M was sig ($p < 0.05$) higher than in women (50.9 vs. 44.6). The estimated % BF in F was sig ($p < 0.05$) higher than in men (22.3% vs. 10.3%). After performing a VO_{2max} test on a treadmill, the Ss sat on a chair for 5 min. The peak blood lactate sample was taken at the end of the 5th min. Thereafter, Ss performed an active recovery test at an intensity of 40% VO_{2max} for 30 min. Blood samples were taken at the 5th, 10th, 15th, 20th, and 30th min. Two 2-way (gender x sample times) ANOVA with repeated meas on one factor (lactate concentration, and removal rate) were used to analyze the data. There were no sig ($p>0.05$) diff in resting or peak blood lactate concentrations between M and F. The rate of blood lactate removal of the M and F was not sig ($p>0.05$) diff during the active recovery period. The fastest and the slowest lactate removal rates were observed between 5 to 10 min and 20 to 30 min respectively. At the end of the recovery period, almost 100% of lactate was removed from the blood. The average recovery HR was 73.5% of the S's max HR.

STATE UNIVERSITY OF NEW YORK COLLEGE AT BROCKPORT
BROCKPORT, NEW YORK (J.P. WINNICK)

127. ADAMS, L.B. A comparative analysis of cognitive differences among female elite and nonelite high school field hockey players and high school physical education class nonathletes. MS in Education, 1991, 87 pp. (D. Smith)

The Empire State Games Western Scholastic Field Hockey Team (n = 14), a HS field hockey team (n = 15), and nonathletes in a HS PE class (n = 9) were given a battery of tests and inventories to compare mental aspects such as abstract visual reasoning, concentration, sport-confidence, psychological skills relevant to exceptional performance, and competitive anxiety. Anal included multivariate ANOVA for each cognitive category, one-way univariate ANOVA for each subtest within a cognitive category, and a stepwise multiple regression technique to determine which tests made the greatest contribution to predicting gp membership. Multiple anal revealed that the elite gp displayed sig higher sport-confidence and selected psychological skills. Results of a stepwise multiple regression technique indicated that motivation, mental preparation, and team motivation accounted for 67% of the behavioral variance. A subsequent multivariate anal within just the 2 field hockey gps revealed that the top half of the elite gp displayed sig higher trait sport-confidence and motivation than the bottom half of the nonelite gp. A stepwise multiple regression anal found that motivation, trait sport-confidence, state sport-confidence, and sequencing of information accounted for 99% of the behavioral variance. The results indicated that there are cognitive diff already sig at the HS level, and that these factors influence the development of perceived competence.

128. BETT, A. Changing attitudes toward physically disabled persons using a videotape sport intervention. MS in Education, 1991, 97 pp. (F.X. Short)

The study investigated the effect of a videotape intervention on the attitudes toward physically disabled persons. The Ss were 86 ele and HS stdnts from the same school district. Utilizing a stratified random sampling technique, Ss were assigned to control and experimental gps for each age range (11 to 13 and 16 to 19). All Ss completed the Attitude Toward Disabled Persons Scale, Form 0, on 3 occasions with 2-wk intervals. The experimental gp witnessed a 17-min videotape of a wheelchair basketball game before the second admin. Results indicated that the experimental gp experienced a positive gain in attitude between the 1st and 2nd admin while the control gp did not. This positive gain, however, decreased by the 3rd admin but remained sig higher than the 1st admin. The S's age was not a sig factor in attitude change. The study concluded that a sport videotape is an effective way to change attitudes toward disabled persons but that the resultant change decreases over time.

129. CARPENTER, J. The effects of weight training on self-esteem. MS in Education, 1991, 73 pp. (D.Smith)

The purpose was to examine the effects of wt training on self-esteem. The investigator used a pretest-posttest randomized gp design, using Fox's Physical Self-Perception Profile, in 2 HS. The Ss were M and F, ages 15-19. The exp gp consisted of 21 Ss of beginning wt training classes offered as part of the PE curr. The control gp consisted of 25 stdnts in regular HE classes. The investigation was conducted over a period of 5 wks with 3 sessions per wk for the exp gp. The wt training sessions lasted approx 40 min and were supervised by district PE tchrs. Using ANCOVA, results in 2 (sport importance, physical conditioning) of the 5 subscales demonstrated that the exp gp improved sig more than the control. In the other 3 subscales (strength, body attractiveness, physical self-worth), the exp gp had greater improvement but no stat sig was evident.

130. DENNIS, G.C. NASCAR Winston Cup Drivers: A sociological profile. MS in Education, 1990, 55 pp. (T. McIntyre)

A 33-item survey questionnaire was used to develop a "sociological profile" of the "typical" Winston Cup stock car driver. The survey sample consisted of all active 1987 Winston Cup drivers (n=94). A total of 77 or 84% of the drivers who actually received questionnaires (92) returned them. Descriptive stat were used to anal the data. The typical driver is a 37-yr-old, white M, born and raised in the southeast. Most of the drivers' fathers were skilled manual laborers who also had some type of involvement in auto racing. Interestingly, most of the drivers participated in interscholastic athletics while at the same time they pursued their own interest in auto racing. Most of the drivers were HS grads but few went on to college. The reason why most of the drivers entered racing was because of their family involvement in the sport and/or because they loved the competition. Most of the drivers were married and had 2-3 cvhildren. The typical respondent had over 30 yrs of racing experience, 20 yrs at the professional level. Most of the drivers viewed themselves as athletes and racing as a sport; they engaged in physical fitness training 2-3 times a wk, 52 wks a year, the majority preferring aerobics and tennis. With respect to job satisfaction, most of the drivers were "very satisfied" with their work and described their racing careers as being "very successful."

STATE UNIVERSITY OF NEW YORK AT BUFFALO
BUFFALO, NEW YORK

131. FISHER, N.M. Muscle rehabilitation of patients with osteoarthritis of the knees. EdD, 1991.

Osteoarthritis (OA) of the knees is a common condition affecting the elderly,

causing functional limitations and dependency. We postulate that OA symptoms lead to a negative feedback loop, where motor unit inhibition leads to decreased muscle function, mobility, and activity and worsening symptoms. Although no quantitative data have been published, based on this hypothesis, a muscle rehab prog, designed to improve muscle function without exacerbating symptoms, would increase both muscle function and functional capacity. 20 M and 20 F with knee OA were selected from 437 volunteers and then randomly assigned to 3 mos of physical therapy (PT) or PT plus quantitative progressive muscle rehab (PT+QPE). QPE emphasized quantitatively prescribing exercise throughout the functional activity range. We meas muscle function (strength, endurance, contraction velocity) and motor unit recruitment by integrated electromyography (IEMG) on a specially designed exercise bench. Functional performance (ability to perform activities of daily living) was assessed by the Jette Functional Status Index and functional assessment questionnaires. Testing was conducted initially, after 1 and 2 mos, and post rehab. In addition, a progressive treadmill protocol, with meas of HR, BP, and VO_2, evaluated CV fitness. OA patients had less strength (42%) (especialy at longer muscle lengths), endurance (67%), velocity (38%), and functional capacity (63%) than normals. PT and PT+QPE had increased muscle length, strength (12%), endurance (29%), and function (17%). Max IEMG increased after 6 wks and force after 12 wks. Increases in aerobic power and walking speed and decreases in submax HR and SBP demonstrated an increase in aerobic fitness, secondary to improved muscle function. PT+QPE had greater increases than PT, especially at longer muscle lengths and all hamstring meas. QPE alone (previous study) had greater improvements, especially in contraction velocity, than any of the prog. QPE alone, followed by a CV prog, would result in max improvements in muscle function and functional performance in patients with knee OA.

132. KELLEHER-WALSH, B.J. Development of a child injury data base for use in biomechanics research. MS, 1992.

The aim of this clinical case series was the creation of a child injury data base for use in biomechanics research. The focus was the association of injuries observed in young children who had been involved in automobile accidents while restrained by forward facing child restraint systems with (1) the particular vehicle crash characteristics and (2) the child restraint system used. The study resulted in the creation of a data base containing 198 children who sustained a total of 345 injuries. 73% of the involved child restraint systems were identified by design type. The data anal includes descriptive data concerning the injured body regions and types and severities of injuries delineated by accident characteristics (i.e., impact direction, seating position, etc.). Comparison of abdominal injury and child restraint system design (harness or shield type) showed that abdominal injury was associated to a greater degree with shield type restraints compared to harness type restraints ($X^2=7.97, p<.01$). The ma-

jority of injuries observed in all types of crashes were injuries to the head and face. The findings tentatively suggest that, in spite of the research, development, and testing that has been performed during the past 12 yrs and the government regulated limitations on head excursions, forces, and accelerations, there remains a critical need for better directed research into child injury causation and mitigation in the field of impact biomechanics.

133. PUCKREE, T. Does intercostal stretch affect respiratory muscle activities? MS, 1992. (F.J. Cerny)

The physiological responses produced by intercostal stretch, as applied by physical therapists to improve ventilatory function, on ventilatory muscle activity are unknown. The responses to intercostal stretch in diff body positions has not been quantified. The purpose of this study was to determine the responses of the diaphragm, parasternal intercostals, and external oblique abdominal muscles to intercostal stretch when the S was supine and 60° semi-recumbent. Stretch was applied to the 3rd and 8th intercostal spaces in-phase with either inspiration or expiration. 6 healthy F and 3 M volunteers with a mean age of 25 yrs participated. Surface EMGs were recorded from the diaphragm, parasternal intercostals, and external oblique abdominal muscles. Ss breathed through a mouthpiece attached to a breathing valve and a pneumotachometer. The pneumotach flow signals served as a guideline to differentiate between inspiratory and expiratory phasic activity, in the anal of the EMG signals. Stretch was applied 10 times with a 2-min interval between each condition. Stretch was quantified as a pressure change in a water-filled tube under the finger. The results demonstrated a sig increase in the mean peak amplitude and mean burst duration of the diaphragm EMGs when stretch was applied in-phase with inspiration. Parasternal intercostals showed similar but nonsig increases in mean peak amplitude and a sig increase in mean burst duration of phasic inspiratory activity in response to inspiratory stretches. External abdominal oblique showed no detectable response to stretch. Body position had no detectable effect on responses of any of the 3 muscles studied. We conclude that intercostal stretch facilitates diaphragm and parasternal intercostal muscle inspiratory activity but evokes no detectable change in external abdominal oblique EMG.

134. WALKER, J.A. The effect of bromelain on recovery from exercise-induced skeletal muscle injury. MS, 1990. (H.W. Burton)

Bromelain, a proteolytic enzyme extracted from pineapple stems, reportedly has therapeutic effects in the treatment of inflammation and soft tissue injuries. We tested the hypothesis that bromelain accelerates the recovery of exercise-induced skeletal muscle injury, as meas by max isometric tetanic force (P_o). Syrian golden hamsters were anesthetized and the left foot was strapped to a motorized foot pedal. The extensor digitorum longus (EDL) muscle was injured using active lengthening exercise, induced by continuous flexion/

extension cycles (21 cycles/min) synchronized with electrical stimulation during extension. The stimulus was 0.2 ms at supramax voltage and delivered at 150 Hz. This protocol was repeated for 3 5-min sets, each separated by a 5-min rest. Injured animals were randomly assigned to a 0-day gp, which was evaluated 3 hrs postexercise, or a nontreated, NT, or bromelain-treated, T, gp and evaluated at 3, 7, or 14 days postexercise. Following injury, T gps received 10 mg/kg b.w. of bromelain daily. NT gps received an equal amount of distilled water. P_o was meas in vitro for injured EDL muscles and compared to P_o of noninjured contralateral control muscles. Muscles were placed in formalin fixative and saved for anal of fiber count and muscle cross sectional area. Compared to control muscles, P_o was 18% lower 3 hrs postexercise (0-day) and 25% lower 3 days postexercise in the NT gp ($p<0.05$). P_o in the 3-day T gp was reduced by 14%, as compared to control muscles. P_o in muscles from the T gp was sig greater than P_o in muscles from the NT gp 3, 7, and 14 days postexercise ($p<0.05$). P_o in both gps was still sig lower than control P_o at 14 days. The no. of muscle fibers per cross section was sig reduced in the 3-day NT gp compared to controls, while the no. of muscle fibers in the 3-day T gp was not sig diff from controls. We conclude that oral bromelain treatments of 10 mg/kg daily sig improve recovery of force production following exercise-induced skeletal muscle injury.

STATE UNIVERSITY OF NEW YORK AT CORTLAND
CORTLAND, NEW YORK

135. BONNEVIE, R.L. A description of American alpine ski racers. MS in Physical Education, 1990.

Three diff ability gps of alpine ski racers (17-19 yrs old) were surveyed via a mailed questionnaire regarding their skiing and racing history and the impact of coaches. Results from the 52 responses indicated that these athletes come from affluent families and that their families play an active role in the initiation and support of ski racing. Very elite skiers spent much more time on snow and began skiing and racing earlier than elite or successful skiers. Very elite skiers also gave coaches a higher rating and judged coaches to be more experienced than did the other two gps. It was found that coaches personally play an important role in the careers of alpine skiers. Findings also showed that in order to reach a very elite level of ability, the athletes must begin skiing and racing at a very young age, experiencing a fair degree of success at ski racing in the younger age classes. Implications were also made for young developing skiers, and a description of above average American alpine skiers was established.

136. FERRELL, M.D. An analysis of the Bernoulli lift effect as a propulsive component of swimming strokes. MS in Education, 1991. (J.L. Hendrick)

Hydrodynamic lift forces as defined by the Bernoulli principle have become widely accepted as a major contributing component of swimming propulsion since being introduced in the 1970s. Upon examination of the Bernoulli principle, it is evident that laminar flow is necessary in order for an airfoil to generate lift forces. The purpose of this study was to determine if laminar flow was present about the back of the hand to test the sig of the Bernoulli lift effect as a major contributing propulsive component in swimming. Flow characteristics were observed over the back of hand models by means of the distinctive activity of sensitive tufts attached to hand models. 3 independent variables—relative velocity, hand size, and angle of attack—were examined due to their considerable impact on force generation and aerodynamic theory. Small, medium, and large hand models were videotaped as they were drawn through water at 5 diff angles of attack and at 3 speeds. Slow motion and stop-action capabilities were used in evaluating the videotaped data with respect to the proportion of turbulence observed over the back of the hand models. Turbulent flow was identified by the characteristic random activity exhibited by the attached tufts. It was found that at angles of attack of 30 and 40°, the flow characteristics over the back of the hand are virtually all turbulent. It was also found that complete laminar flow over the back of the hand was not observed in any of the trial conditions. It was concluded that hydrodynamic lift applicable to the Bernoulli principle is not present due to the observed marked predominance of turbulent flow. Consequently, Bernoulli lift forces are not a major component for hand propulsion in swimming.

137. STECIAK, D.M. A comparison of selected neuromuscular and kinematic variables before and after learning an aiming task. MS, 1992. (F. Brush)

The purpose was to compare selected neuromuscular and kinematic variables between prelearning and postlearning of an aiming task. 8 M and 7 F Ss volunteered to learn a novel aiming task that required minimal practice. An adjustable throwing apparatus was designed that allowed the Ss to propel a ball with their dominant arm at a graded target, using elbow extension. An electromyograph recorded electrical muscle activity from the agonist muscle (triceps) and antagonist muscle (biceps). Also recorded were limb mvmnt and position of the limb at ball release. Prelearning electromyographic and kinematic data of 5 initial performance trials were collected. After Ss practiced and met a learning criteria, postlearning data of 5 final performance trials were collected. The prelearning and postlearning electromyographic and kinematic data were compared for temporal and kinematic modifications. Reduced raw data were subjected to parametric and nonparametric data anal. The following conclusions seem justified: (1) Sig changes occurred in the interaction between agonist and antagonist muscles. (2) Inhibition of the antagonist muscle may

have been responsible for skill acquisition. (3) Temporal modifications in the antagonist muscle were responsible for skill acquisition.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY
NEW YORK, NEW YORK (W.G. ANDERSON)

138. KING, S.E. The enrollment and persistence of African-American doctoral students in physical education and related disciplines. EdD in Curriculum and Teaching in Physical Education, 1992, 268 pp. (W.G. Anderson)

The purpose was to identify factors that affected African-Americans in their decisions to enroll and their ability to persist in doctoral study in PE and related disciplines. A written survey was admin to 106 African-Americans who earned doctoral degrees between 1971 and 1990. A sample of 6 individuals was selected and subsequently interviewed. Quantitative and qualitative data were integrated, when appropriate, and a respondent profile was constructed. Case study reports were written for each of the 6 interviewees and a cross-case anal was conducted. Factors affecting enrollment and persistence were both institutional (geographic location, financial aid, campus environment) and noninstitutional (professional aspirations, personal qualities, support from family and others). Financial aid and campus environment were important persistence factors due to the respondents' low income prior to doctoral study ($20,000 or less) and because their choice of doctoral institutions was limited to PWIs. Most respondents attributed their persistence to personal determination and perseverance. Those who experienced a poor campus environment relied primarily upon their personal qualities and support from family and others.

139. LICHTMAN, S.W. Treatment resistant obesity: Mechanism of failure to lose weight on a prescribed hypo-caloric diet. EdD in Applied Physiology, 1992, 108 pp. (R. DeMeersman)

The purpose was to determine if the mechanism(s) for the inability to lose wt in "treatment resistant obese" (TRO) individuals (obese patients who maintain their wt despite normal self-reported physical activity (PA) levels and low self-reported intakes) includes: 1) low metabolic rate; 2) underreported caloric intake; and 3) overreported level of PA. 5 patients from St. Lukes/Roosevelt Hospital's Weight Control Unit met the selection criteria. Matched controls consisted of 5 sex, race, age, and wt matched non-TRO patients. A 3-wk testing protocol included: thermic effect of food (TEF); work economy (WE); doubly labeled water (DLW) anal of free living 14-day energy expenditure (EE) combined with intake and activity records; resting metabolic rate (RMR); and body comp anal before and after the DLW period. There were no sig diff for age, ht, wt, or BMI between the TRO and matched gps. The TRO gp diff sig from the matched control gp for: higher % BF; greater underreporting of food intake

and overreporting of PA; and lower daily PA, absolute RMR, and 24-hr EE. There were no sig diff between the gps for TEF, WE, or RMRs normalized for FFM. This study has shown that obese individuals exist, who, despite a low self-reported caloric intake and a normal self-reported PA level, demonstrate an inability to lose wt. Apparently, these individuals do not have a metabolic defect, but rather a low level of PA combined with a misperception of their behaviors in relation to food and activity.

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140. DELLAIRA, A.S. The relationship between newly graduated nurses' attitudes, knowledge, and experience in nursing care of the person with AIDS/HIV infection and their fear of AIDS. PhD, 1992. (S. Ruzek)

The purpose was to examine the relationship between newly graduated nurses' level of knowledge of nursing care of, attitudes toward, and level of experience in caring for the person with AIDS/HIV infection and their fear of AIDS. Knowledge was meas by the National League for Nursing 60-item Caring for Persons with AIDS Test. Attitude was meas by a modified 35-item 5-point Likert scale and Self-Rating Scale of Fear developed by Lester & Beard (1988) and Prince, Beard, Ivey, & Lester (1989). A 3-part pencil and paper questionnaire was admin to 267 volunteer Ss who were employed in 12 medical surgical hospitals in a large mid-Atlantic city and who met all the criteria for inclusion in the study. Spearman rank order and biserial r coefficients showed stat sig relationships between knowledge and attitude and between level of fear and level of knowledge, attitude, and experience. Stat sig relationships were found between willingness to care for the person with AIDS/HIV infection and level of fear, level of knowledge, level of experience, and attitudes toward persons with AIDS/HIV infection, homosexuals, and IV drug abusers. Partial regression anal showed that age category, marital status, prior degree, and personal experience were the only sociodemographic variables which were predictors of level of knowledge. Personal experience was the only sociodemographic variable which was a predictor for level of fear, willingness to care, and attitudes toward persons with AIDS/HIV infection, homosexuals, and IV drug abusers. ANOVA showed stat sig diff in no. of lecture hrs on AIDS educ by type of nursing educ (BSN, AD, and diploma). While the no. of lecture hrs differed by educ prep, no stat sig diff were found on knowledge scores, attitude scores, and fear scores by type of nursing educ.

141. DICKASON, E.L. Use of the health belief model in determining mammography screening practice in older women. EdD, 1991. (P. Legos)

The purpose was to examine the relationship of health beliefs, breast cancer

knowledge, health history, and the frequency of mammography screening in a pop of older F. A further goal was to identify factors related to older F's decision to participate in annual mammography. These factors may be useful in planning educ prog for the specific needs of older F regarding breast cancer and the preventive action of mammography screening. The research utilized a r design and was anal by Spearman's rho to test the null hypotheses. The study included a modification of Champion's instrument as well as health history and breast cancer questionnaires. All components of the study instrument were based on the Health Belief Model (HBM). Ss (292) completed the study instruments. The dependent variable was the frequency of mammography screening in the past 5 yrs. The independent variables representing the HBM were: (a) perceived susceptibility, (b) perceived seriousness, (c) perceived benefits, (d) perceived barriers, (e) perceived cues, (f) perceived health motivation, (g) breast cancer knowledge, and (h) health history. Spearman's rho anal determined the sig variables to be: (a) barriers (rho=-.5187, p<.001), (b) benefits (rho=.3629, p<.001), (c) health motivation (rho=.3515, p<.001), (d) knowledge (rho=.2788, p<.001), (e) health history (rho=.2525, p<.001), and (f) cues (rho=.1645, p=.008). Further anal using multiple regression led to a hierarchy of the sig predictors of mammography screening frequency (% of variance): (a) barriers (22.29), (b) age (6.66%), (c), yrs of school (3.18), and (d) health motivation (3.05).

142. FRITTS, S.M. Psychological factors that predispose athletes to injury. MEd, 1992. (M.L Sachs)

This study was performed to determine if there was a relationship between psychological states and athletic injury. Many studies have postulated that neg psychological states may predispose athletes to physical injury. 10 Temple Univ F gymnasts participated. These gymnasts were given 9 psychological inventories, including the Profile of Mood States (POMS), Coping Resources Inventory, Health Attribution Test, Eating Disorders Inventory, Sport Anxiety Scale, the Exercise Salience Scale, Life Experiences Survey—Athletes, Survey of Athletic Experiences, and the Social Network Scale prior to the start of their 1990-1991 season. At various times they were given the POMS and the Incredibly Short POMS to determine their mood state. In addition, the injuries sustained by these gymnasts were tracked throughout the season. Descriptive data were presented for the POMS, Health Attribution Tests, the Exercise Salience Scale, Coping Resources Inventory, and the scores for the Health Attribution Test and the Coping Resources Inventory were within the normal limits. The majority of the scores for the POMS were within the normal limits, but the z scores indicated that some of the scores were above or below one SD from the mean. However, all of these scores were in the direction of psychological health. Trend anal were performed to determine the patterns of mood fluctuations over time in relation to the approach of competition. 4 linear trend anal were performed with sig results in 2 of 4. No quadratic trends were shown,

but all 3 cubic trends were found to be sig. These results implied that there was a great deal of fluctuation in the mood states of these gymnasts over time and that no general conclusions can be made regarding mood states and competition.

143. GARFINKEL, M. The effect of yoga and relaxation techniques on outcome variables associated with osteoarthritis of the hands and finger joints. EdD, 1992. (M. Levy)

Osteoarthritis (OA) is a chronic degenerative joint disease that is practically universal in people over 65 yrs of age and is not responsive to medical treatment. Mvmnt therapy may be useful in relieving OA symptoms, protecting the diseased joint(s), and strengthening the muscles around the joint(s), yet current therapy management is primarily directed toward pain control with use of pharmaceutical agents. The purpose of this study was to examine the effect of a HE intervention based on yoga and relaxation techniques on patients with OA of the hands and finger joints. 6 dependent variables were considered: (a) ROM of the finger joints, (b) hand grip strength, (c) tenderness of the finger joints, (d) circumference of the finger joints, (e) hand pain, and (f) hand function. Ss were OA patients from the Philadelphia Veterans Affairs Medical Center, the Hospital of the Univ of Pennsylvania, private patients of Dr. H. R. Schumacher, chief of rheumatology at both hospitals, and respondents to newspaper ads. The treatment gp received a yoga and relaxation prog consisting of 8 60-min weekly sessions. The control gp received no prog during the 8 wks. Both gps were meas on the dependent variables before and after the intervention. Stat sig diff ($p<.05$) were found between the 2 gps in pretest minus posttest meas for the variables of ROM of the finger joints for the right hand, tenderness of the finger joints for both hands, and hand pain during activity. On each, the treatment gp improved more than the control gp. Findings suggest that a HE intervention based on yoga and relaxation may be an effective way to increase ROM of the finger joints, decrease tenderness of the finger joints, and decrease hand pain during activity.

144. GOEHRINGER, D.M. A study of the perceived effects of the repeal of the Pennsylvania Interscholastic Athletic Association constitutional bylaw article 11, section 2 on selected aspects of administering Pennsylvania public high school interscholastic, varsity athletic programs. EdD, 1992. (M. Jackson)

The purpose was to identify the perceptions of PA public HS principals and athletic directors (ADs) on the future effects that the repealed PA Interscholastic Athletic Association (PIAA) constitutional bylaw article 11, section 2 will have on selected aspects of admin their HS interscholastic varsity athletic prog. The bylaw originally stated that no team representing a PIAA member school may practice or participate on Sunday. On Feb. 9, 1991, the PIAA voted to allow contests and practices to take place on Sundays; however, there must be one "day of rest" within each 7-day wk from Sunday through Saturday for

every athlete. The perceptions of the principals and ADs are based on the future effects of the bylaw during the first 3 yrs following the repeal. Data for anal were obtained from a survey completed by randomly selected public school principals and ADs representing 25% of the PIAA member schools in each of the 12 PIAA geographical districts. The questionnaire was divided into 4 categories for stat anal: (a) demographics, (b) athletic budget, (c) athlete and community participation, and (d) scheduling of community activities and athletic contents and practices. All items were anal through the use of a descriptive stat anal. The following stat anal procedures were completed: (a) chi square, (b) r anal, and (c) ANOVA. The results of chi-square and ANOVA stat anal indicated sig diff between the demographic variables of (a) school setting, (b) HS enrollment, (c) PIAA district, and (d) no. of sports, when compared to items within the sport administration variables of (a) athletic budget, (b) athlete and community participation, and (c) scheduling of community activities and athletic contests and practices. Based on findings, recommendations were made for future studies.

145. GUNNING, M.J. Survey of aquatic programs and aquatic facility accessibility features available to and utilized by physically handicapped students at four-year Pennsylvania colleges and universities. EdD, 1991. (M. W. Jackson)

The purpose was to identify and examine aquatic prog and aquatic facility accessibility features available to and utilized by physically handicapped stdnts at 4-yr PA coll and univ. Utilizing a self-designed questionnaire, the investigator surveyed aquatic admin from 100 4-yr PA coll and univ. Validity for the instrument was established via an acknowledged panel of 6 experts. Reliability was established via random selection with replacement of a sample of 10 institutions followed by an item anal meas of agreement. Findings indicated that physically handicapped stdnt enrollment represented less than 2% of the total institution enrollment. Less than 1% of physically handicapped stdnts at public institutions and less than 10% at private institutions were participating in aquatic prog. In addition, none of the respondents met or exceeded the minimum requirements for aquatic accessibility. Conclusions included: (1) Enrollment size was related to aquatic entry accessibility features available, physically handicapped participation in recreational aquatic prog, and adjunct areas accessibility features available. (2) Enrollment size was not related to aquatic prog available, physically handicapped participation in instructional aquatic prog, adaptive aquatic instructors' qualifications, and aquatic depth, aquatic deck, and aquatic safety accessibility features available. (3) Institution type was related to aquatic prog available, entry aquatic accessibility features available, adaptive aquatic instructors' qualifications, and adjunct area accessibility features available. (4) Institution type was not related to physically handicapped participation in recreational and instructional prog, and aquatic depth, aquatic deck, and aquatic safety accessibility features available.

146. HALLIDAY, N. The effects of contextual interference and three levels of difficulty on the acquisition, retention, and transfer of hockey striking skills by second grade children. Doctoral dissertation, 1992. (M. Goldberger)

The purpose was to examine the effects of contextual interference and 3 levels of difficulty on the acquisition, retention, and transfer of hockey striking skills by 2nd grade children. The 54 2nd graders received a total of 24 practice trials on each of 3 tasks in either a blocked, blocked-random, or random format. The tasks consisted of striking a stationary ball to a stationary target 15 ft away (easy task), striking a rolling ball to a stationary target (medium task), and moving to strike a rolling ball to a stationary target (difficult task). Absolute error, absolute constant error, and variable error scores were calculated for the 3rd day of acquisition, for 2 novel transfer tasks, and for the original acquisition tasks after a 7-day retention period. Data for acquisition and retention were anal using a 3 (contextual interference) x 3 (level of difficulty) design with repeated meas on the last factor. Transfer data were anal using a 9 (contextual interference before and after) x 2 (level of difficulty) design with repeated meas on the last factor. Both the random and blocked-random practice gps showed sig less variability in performance on the easy task at the end of acquisition. The retention results revealed that the performances of the blocked and blocked-random gps on the easy task were sig less variable than those of the random gp. Results of this study indicate that the blocked-random and blocked practice conditions may be more beneficial for children. Lack of sig findings for the medium and difficult level tasks may be an indication that these types of tasks are too difficult for 2nd grade children, or that the combination of these 3 tasks produced levels of contextual interference that were too great to be of benefit to 2nd grade children.

147. HANRAHAN, S.N. Tampon labeling and its effect on female adolescents' knowledge of tampon absorbency, knowledge of toxic shock syndrome, and tampon usage patterns. 1992. (S. Ruzek)

An investigator-admin survey was completed on 230 F adolescents (15-18 yrs) in 6 midwestern HS stratified by geographic location and grade in school. The questionnaire was designed to investigate the effect of reading tampon labeling on Ss' knowledge of tampon absorbency, toxic shock syndrome (TSS), and tampon usage patterns. A historical review of the tampon absorbency labeling regulation and its implementation was also addressed. The study found that F adolescents read tampon labeling and have low knowledge of tampon absorbency and high knowledge of TSS. Tampon labeling was the highest reported information source for TSS.

148. HICK, B.A. Freshman eligibility in intercollegiate athletics. MEd, 1992. (B.L. Parkhouse)

The purpose was to compare the opinions of selected Div I univ presidents, athletic directors (ADs), head athletic coaches, and athletic academic advisors as to whether or not freshman stdnt-athletes should be allowed to compete their 1st yr. A questionnaire was sent to 160 Ss, all members of either the Big East Conference or the Pacific Ten Conference. There was an 81% return. The data showed that 67% of the Ss were against the concept of declaring all freshman stdnt-athletes ineligible their 1st yr. A higher percentage of AD favored freshman ineligibility than athletic coaches. 47% of the coaches who direct revenue-producing (football and men's basketball) athletic prog were in favor of freshman ineligibiity compared to only 17% of coaches who direct nonrevenue (all other athletic) prog. It was concluded that the majority of Ss do not think that freshman ineligibilty will occur within the next 5 yrs.

149. HOFFERT, T.A. Peak torque reliability of Biodex B-2000 isokinetic dynamometer during concentric loading of back flexors and extensors. MEd, 1992. (I.F. Kimura)

The purpose was to assess the reliability of the Biodex isokinetic dynamometer in the meas of peak torque during concentric loading of the back flexors and extensors. The back muscles of 30 asymptomatic M Temple Univ volunteers, who had no previous experience with the Biodex back apparatus, were tested in a 100° arc using the concentric mode of the Biodex B-2000 isokinetic dynamometer. Following a warm-up of 4 submax and 1 max rep, the Ss performed a 5-rep test bout at 90° per sec. The 3 sessions, conducted on diff days, consisted of a practice, test, and retest session. The Ss were retested following a rest period of at least 7 days and not more than 10 days. The reliability between test and retest was evaluated by performing a repeated meas ANOVA with reliability from the SPSS manual (Hull & Nie, 1981). Correlation coefficients for trunk flexion and extension were r=0.74 and r=0.87, respectively. Cronbach's alpha levels for trunk flexion and extension were .843 and .931, respectively.

150. HOPKINS, J.R. The effects of hip position and angular velocity on quadriceps and hamstring eccentric peak torque. MEd, 1992. (M.R. Sitler)

The purpose was to determine the effects of hip position and angular velocity on quadriceps and hamstring peak torque on the hamstring/quadriceps (H/Q) ratio during max isokinetic eccentric force. The dominant knee of 7 M (mean age = 23.7 ± 2.6 yrs) and 7 F (mean age = 23.3 ± 1.6 yrs) was tested using a KIN/COM dynamometer. Both quadriceps and hamstrings were tested with the S seated (110° hip flexion) and supine (10° hip flexion) at angular velocities of 60 and 180°/sec. The order of muscle gp, hip position, and angular velocity was randomized. Testing sessions for the 2 muscle gps were separated by 7 days. The highest eccentric peak torque of 5 max repetitions for each test trial was used for data anal. A 2 x2 x 2 factorial ANOVA was used with 2 levels each of

muscle gp, angular velocity, and hip position with the dependent variable of peak eccentric torque. A 2x2 factorial ANOVA examined 2 levels each of angular velocity and hip position with the H/Q ratio as the dependent variable. There were sig main effects for all factors with no sig interactions: (1) The quadriceps produce sig greater eccentric peak torque than the hamstrings. (2) The quadriceps and hamstrings produce sig greater eccentric peak torque in the seated position than in the supine position. (3) The quadriceps and hamstrings produce sig greater peak torque at 180°/sec than at 60°/sec. (4) H/Q ratios are greater in the seated position than in the supine position. (5) H/Q ratios are greater at 180°/sec than at 60°/sec.

151. HOWARD, E.C. A survey of the desired educational preparation and employment market for high school athletic trainers in metropolitan Washington, DC as perceived by high school athletic directors. EdD, 1992. (M. Jackson)

The purposes were: (a) to identify the utilization of athletic trainers by composition of schools in the Washington metropolitan area (WMA) and (b) to identify the desired professional prep and potential job market for HS athletic trainers in the WMA, according to HS ADs in the WMA. The study further surveyed the HS ADs in the metropolitan region on their knowledge of and support for the credentialing process of the National Athletic Trainers' Association (NATA). The major findings of the study were as follows: (1) The primary educ preferences of HS AD for employment as an athletic trainer were a bachelor's degree and NATA certification. (2) ADs had knowledge of the athletic trainer credentialing examination and educ prep endorsed by NATA. (3) AD supported the idea of state credentialing. The conclusions of the study were as follows: (1) HS which had a larger number of stdnts enrolled were not more likely to employ an athletic trainer than HS with a smaller number of stdnts. (2) HS which had a larger number of faculty were more likely to employ an athletic trainer than HS with a smaller number of faculty. (3) HS which had a larger number of M sports teams were more likely to employ an athletic trainer than HS with a smaller number of M sports teams. (4) HS with a larger number of F sports teams were more likely to employ an athletic trainer than HS with smaller numbers of F sports teams. (5) HS with a larger number of M participants were more likely to employ an athletic trainer than HS with a smaller number of participants. (6) HS with a larger number of F participants were more likely to employ an athletic trainer than HS with a smaller number of F participants.

152. KOTARSKI, M. An evaluation of a home-based exercise program involving non-exertional hypoxemic and exertional hypoxemic chronic obstructive pulmonary diseased patients. MEd, 1991. (R. Berger)

The purpose was to determine the effects of home-based pulmonary rehabilitation (HBPR) on 2 pops of COPD Ss. One pop consisted of Ss who demonstrated

no decrease in O_2 saturation (oxygen sat % > 85) during exercise, and 1 pop who demonstrated exertional hypoxemia (oxygen sat % < 85) during graded exercise testing. The nonexertional hypoxemic (NEH) gp consisted of 13 Ss (9 M, 4 F) with a mean age of 64 ± 7.5 yrs and a mean forced expiratory volume in one second/forced vital capacity (FEV1/FVC[%]) of 53±5%, while the exertional hypoxemic (EH) gp consisted of 12 Ss (9M, 3 F) with a mean age 66.1±4.7 yrs and a mean FEV1/FVC (%) of 43±7%. All Ss trained at home for 6 wks by continuous and/or discontinuous walking or bicycling, and by inspiratory muscle training (IMT) using a PFLEX. During training the EH gp used supplemental nasal oxygen (2L/min). During the 6 weeks, each S was phoned once weekly and given encouragement and exercise progression by an exercise specialist. Utilizing a dependent t-test, sig changes were found in the NEH gp in VO_{2max} (14.7 ± 11.95 ml/kg/min to 15.9 ± 12.01 ml/kg/min), MET values (4.2±.99 to 4.6±.95) and systolic BP at 2 min (158.9±20.6 mmHg to 147.0 ± 18.4 mmHg). The EH gp improved sig in MET values (2.0 ± 1.1 to 2.6 ± 1.0) and treadmill time (236.5 ± 154.1 sec to 333.9 ± 154.3 sec). A 2x2 factorial ANOVA with 2 levels of NEH and EH gps, and 2 levels of before and after 6 wks of training, showed sig diff on both factors with the dependent variable of MET values. Both gps increased sig in MET values with the NEH gp having a higher MET mean (4.2 ± .99 at T1 and 4.6 ± .95 at T2) than the EH gp (2.0±1.1 at T1 and 2.6±1.0 at T2). Both gps improved similarly in MET values. In the 2x2 factorial ANOVA, with HR as the dependent variable, sig diff were found between gps but not within gps. Interaction was not sig. It was concluded that 6 wks of HBPR increased functional capacity of both gps of COPD Ss.

153. LLOYD, M.B. Preoperative preparation of adult patients for cardiac surgery: The relationship of singularity and interaction elements. 1992. (M. Levy)

The purpose was to provide a data base on the relationship between characteristics of clients and nurses (singularity elements) and intervention strategies (interaction elements) which are used in preoperative preparation of adult patients for cardiac surgery. These factors were explored in the context of a modification of the Interaction Model of Client Health Behavior. A survey and case studies were conducted of nurses responsible for preoperative preparation of adult cardiac surgery patients in hospitals of the DE Valley region of PA and NJ. 222 nurses (51%) responded to the survey questionnaire at 13 hospitals and 3 nurses volunteered for the case studies at 1 hospital. Data were collected on the nurses' backgrounds, assessment of client characteristics, intervention strategies, and expected outcomes in preoperative preparation of patients for cardiac surgery. Following factor anal of element variables from the survey data, canonical r anal produced 2 stat sig r between the set of 3 client singularity factors and the set of 4 interaction factors ($R_c = 0.634$, $p = 0.000$; $R_c = 0.311$, $p = 0.001$) and 2 sig r between the set of 6 nurse singularity factors and set of

4 interaction factors ($R_c = 0.535$, $p = 0.000$; $R_c = 0.422$, $p = 0.000$). Further , hierarchical multiple regression anal, alternating entry of client singularity and professional singularity factors as the 1st predictor block, demonstrated stat sig ($p = \leq 0.05$) R^2's for 3 interaction factors ($R^2 = 0.328$; $R^2 = 0.277$; $R^2 = 0.115$) with similar R^2 changes for both entries. Content anal of the case study data elaborated on the survey results. These findings demonstrated that assessment of clients' psychosocial responses and presence of professional resources related to individualized psychoeducational approaches in preoperative preparation of adult patients for cardiac surgery. Therefore, in order to plan effective preoperative prog, consideration is needed of client and nurse characteristics that are associated with nurses' choices of intervention strategies.

154. MACKEY, M.J. Aquapreneurship: Characteristics and business management practices of current and potential swim school owners. PhD, 1992. (B.L. Parkhouse)

The purpose was to investigate the entrepreneur characteristics, professional development, and business management training and practices of current and potential private swim school aquapreneurs. Entrepreneurial characteristics of F and M private swim school aquapreneurs were compared to entrepreneurs in general. The final purpose was to identify recommendations for potential private swim school aquapreneurs. The entrepreneurial characteristics surveyed by questionnaire included parent employment, birth order, first born, risk and chance, competition, reasons for self employment, personal characteristics, motivation, working relations, goal orientation, youth activities, and preference for exercise. The professional devel status of the current and potential aquapreneurs was investigated by asking about aquatic training and certification (child development, levels of swimming instructor, adapted aquatics, coaching, water exercise, synchronized swimming, aquatic management, first aid, cardiopulmonary resuscitation, and certified pool operation); education; occupation; and membership in professional organizations. The study included 225 ss. The 45 private swim school aquapreneurs were members of the National Swim School Association and /or MacTay Swim Schools. Potential private swim school aquapreneurs attended the 1991 Council for National Cooperation in Aquatics Convention, were members of the US Water Fitness Association, or were aquatic directors for the Jewish Community Center Assoc or YWCA. Similarities between entrepreneurial characteristics of the aquapreneurs (78.6% F) as compared to M entrepreneurs were identified. Current and potential aquapreneurs were similar to the entrepreneur in the areas of risk taking, competition, personal characteristics, motivation, and goal orientation. Professional devel of the aquapreneurs was strongest in the area of basic aquatic training and weakest in the areas of related occupational experiences and advanced aquatic training. Business management training and experience was strongest in the area of staff supervision. Limited training in accounting, marketing, advertising, promotions, and use of a business plan was indicated.

155. MOSER, C.D. Metabolic response to acute cold air exposure and two levels of beta blockade. PhD, 1991. (A.M. Paolone)

To evaluate the metabolic responses to 2 levels of beta blockade during cold air stress, 6 M (28.5±6.3 yrs, 77.5±11.67 kg, 16.7±3.2% fat) and 5 F (27.0±6.0 yrs, 66.6±13.2 kg, 25.1±6.3% fat) were randomly admin propranolol or placebo and were exposed for 60 min to 2 environments: 5 and 25°C (40 to 60% relative humidity). Propranolol treatments were 0.75 mg/kg and 1.25 mg/kg. Propranolol and placebo were admin every 8 hrs during the 1st day and a single dose at the beginning of the 2nd day, 120 min before each chamber exposure. Core temperature in the cold (37.5±0.41°C) was higher ($p<0.05$) than in the neutral (37.2±0.24°C) with no gender effect. With environment x drug interaction, mean skin temp was lower ($p<0.01$) in the cold (27.2±1.25°C) than in the neutral (32.8±0.74°C) across gender. Across gender in the cold environment, mean skin temp was lower ($p<0.05$) on the low dose of propranolol (27.24±1.30°C) than on the placebo (28.00±1.20°C), and lower ($p<0.05$) on the high dose (26.49±1.69°C) than on the low dose. % blockade during treadmill exercise were 24.2±6.5 on the low dose and 28.8±5.2 on the high dose ($p<0.001$) with no gender effect. Thermoregulatory oxygen consumption (TVO_2) was taken as the diff between the 25°C pre-exposure oxygen consumption (VO_2) and the mean cold exposure VO_2. Across gender, TVO_2 was lower ($p<0.05$) for the low dose (0.141±0.086 L/min) than for the placebo (0.236±0.101 L/min), but the high dose (0.170±0.101 L/min) was not sig lower than the placebo. Surface electromyogram (amplitude density coefficients of variation) for the high dose (16.2±7.2) was greater ($p<0.05$) than the placebo (12.4±4.6), but not sig greater than the low dose (12.9±5.8). In conclusion, the low dose of propranolol reduces the adult human metabolic thermoregulatory response to cold air stress with no change in shivering as compared to the placebo. Second, the adult human shivering response to cold air stress is greater on the high dose of propranolol than on a placebo, without a sig reduction in the metabolic thermoregulatory response. Finally, the metabolic and thermoregulatory responses of M and F do not differ.

156. PAPANIKOLAOU, Z. Attention in young soccer players: The development of an attentional focus training program. PhD, 1992. (C. Oglesby)

The purpose was to investigate the effects of an attentional focus training prog (AFTP) on improvement in attention and soccer ability of young M soccer players at 2 age levels. The Ss (N = 40) were volunteers recruited from a Youth Soccer League in Philadelphia, fall, 1991. The Ss were divided into 2 age gps (8 to 10, and 11 to 13) and then randomly assigned to 1 of 2 subject gps: control (CG) and experimental (EG). Assignment to the CG or the EG was on a random basis by lot. Coaches' subjective assessment determined that the CG and EG were comparable in skill levels. The pre- and posttest procedure consisted of completion of the Test of Attentional and Interpersonal Style (TAIS), a soccer

meas test of attentional and interpersonal style (S-TAIS), and 3 soccer ability tests (throw-in, dribbling, and place kick). The CG's prog consisted of 24 sessions watching films of soccer games and videotape replays of their actual games. The EG's AFTP consisted of a 24-session prog including relaxation, imagery, affirmations, meditation, and concentration. All gps met with the researcher for 30-min sessions, 3 times a wk, for 8 wks during the course of the intervention period. The CG received no formal treatment while the EG participated in the AFTP. Stat sig performance diff were demonstrated by the EG on the broad external attention (BET), the external overload attention (OET), the broad internal attentional focus (BIT), the internal overload attention (OIT), the narrow attention (NAR), and the reduced attention (RED), all beyond the .001 level. Also, stat sig was demonstrated by the EG on the soccer throw-in meas and the place kick meas, both beyond the .001 level. No stat sig diff in soccer dribbling meas were noted. Within the limitations of this study, it was concluded that the utilization of a specific AFTP as a psychological skills training procedure is effective in contributing to increased positive attentional traits (BET, BIT, NAR) and to decreased neg attentional traits (OET, OIT, RED) of young soccer players.

157. PHILLIPS, C. College softball prospect evaluation tool. MEd, 1991. (C. Oglesby)

Softball rating scales designed to evaluate potential coll softball players were investigated. The findings indicated a need for a complete evaluation tool to rate the 3 major ability components (physical, personal, and scholastic) of a potential coll player. As a result, a 5-point rating scale evaluating physical skills (infield, outfield, catcher, pitcher, baserunning, batting, and bunting), personal characteristics, and scholastic aptitude was designed. Due to the complexity of the sport of softball, each major component could not objectively be rated without dissecting the components into smaller units. The design of the softball evaluation enables the rater to evaluate the smaller components to establish an overall numerical rating of a potential coll player.

158. RAMSEY, J.K. Influence of the Strength® shoe and three plyometric drills on the strength, velocity, and jumping ability of high school football players. MEd, 1992. (I. Kimura)

The purpose was to investigate the influence of the Strength® shoe and 3 plyometric drills on concentric and eccentric peak torque values of the triceps surae 40-yd dash time, and vertical jump ht. Ss were 30 HS football players who were randomly divided into 3 gps of 10. All Ss participated in their regular football practice regimen. 2 gps performed 3 additional plyometric drills. The 1st gp, exercising in the Strength® shoe (EXSS), wore the Strength® shoe for drills. The 2nd gp, exercising in conventional shoes (EXCS), wore their own conventional shoes. The 3rd gp, the control gp (CG), also wore their own

conventional shoes but did not participate in the additional plyometric drills. Concentric and eccentric peak torque, 40-yd dash, and vertical jump data were collected before and after a 6-wk training period. Each S was allowed only one attempt at the 40-yd dash and vertical jump during the pretest and posttest data collection. The Biodex B-2000 Isokinetic Dynamometer was used to collect left triceps surae peak torque data at 30 and 90°/sec through a 60° arc of motion. Peak torque data collection involved randomly ordering isokinetic mode and velocities. Four 3-way ANOVAs with repeated meas ($p<0.05$) were performed to examine the diff among test conditions. The results indicated a sig diff between velocities, concentrically, and between tests, eccentrically. Concentric means revealed greater peak torque generated at 30°/sec than at 90°/sec across the gps for both tests. Eccentric means increased in the EXSS gp and CG, and decreased in the EXCS gp during the posttest at both velocities. The results also indicated sig decreases in 40-yd dash times and increases in vertical jump ht after the 6-wk training period across all gps. Sig diff were revealed among gps in the vertical jump. The Tukey post hoc revealed a sig increase in vertical jump ht in the gp exercising in conventional shoes compared to the gp in the Strength® shoe.

159. REID, M.E. The motor development of infants and children exposed to cocaine while in utero. EdD, 1991. (M. Ridenour)

This study demonstrates a stat sig diff in the acquisition of gross motor skills among 5-, 10-, and 15-month-old Ss prenatally exposed to cocaine and Ss of the same age who were not prenatally exposed to cocaine. Cocaine exposure status was determined by the infant's urine toxicology screening conducted at birth. Entrance criteria allowed inclusion of only those participants whose mothers were black; considered to be of good health during an uncomplicated pregnancy which was monitored by medically supervised prenatal care; and manifested in a spontaneous vaginal delivery without complication. Participants were required to have been born at the Martin Luther King, Jr./Drew Medical Center and remain a permanent resident of the South Central Los Angeles Health District. All participants also had to conform to conventional standards of good health and clinical normalcy, both at birth and at time of testing; with the only exception being cocaine exposure status for the exp gp (of which the investigator was blind). Based on ANOVA, it was concluded that cocaine exposure status consistently increased performance across all age gps on both test instruments (Bayley Scales of Infant Development and Infant Mullen Scales of Early Learning gross motor subtests), which were determined to be highly correlated ($p<.05$) across 5-, 10-, 15-month, experimental, and control gps. R coefficients were .96, .88, .93, .81, .96, and .97 respectively. This study employs a definitive look at the effects of prenatal cocaine exposure on motor development in the absence of more obvious medical and developmental anomalies addressed in the overwhelming body of clinical studies.

160. SHAW, D.C. The measurement of knowledge and attitude levels of Seventh-day Adventist high school students regarding acquired immunodeficiency syndrome. EdD, 1991. (W. Greene)

In the effort to investigate the knowledge and attitudes of Seventh-day Adventist HS stdnts regarding AIDS, 387 stdnts were surveyed. 11 schools throughout the US participated, including one in HA and one in AK, and one in Canada. The Ss comprised 196 M, 188 F; racial distribution included Asians (16%), blacks (14%), Hispanics (16%), and whites (53%); ages were 13- (1%), 14- (22%), 15- (43%), and 16-yr-olds (34%); with the majority of stdnts in the 9th grade (78%). Knowledge levels and attitudes were meas by the Survey about AIDS, as developed in 1988 by Carabasi. The construction consisted of 57 forced choice questions divided into 3 sections that assessed knowledge, attitudes, and demographic characteristics. Results revealed that these Ss were moderately knowledgeable about AIDS. No diff was found between M and F related to knowledge. However, white stdnts were more knowledgeable than blacks, Hispanics, or Asians. Schools in the West, as a gp, scored sig lower than schools in the East, North, or South. Attitude levels of stdnts in Seventh-day Adventist HS were moderately favorable in regard to AIDS (favorable here refers to attitudes consistent with authoritative recommendations for protective and social behavior). F attitudes were more favorable than M attitudes; attitudes of whites more favorable than those of blacks, Hispanics, or Asians; and schools in the North, South, and East were more favorable in attitudes than schools in the West. Reliability coefficients derived from this study sample for knowledge and attitudes were .74 (Spearman-Brown and Kuder-Richardson-21 formulas) for knowledge and .76 (Cronbach's alpha and Spearman-Brown formulas) for attitudes. A performance profile that suggests dysfunctional components of gross motor behavior in the presence of accelerated skill acquisition is discussed.

161. SMITH, G.K.P. A survey of the qualifications of competent contract advisors as perceived by members of the Association of Representatives of Professional Athletes. EdD, 1991. (M.W. Jackson)

The purpose was to identify and examine the opinions of the Association of Representatives of Professional Athletes (ARPA) members toward recommendations for determining the qualifications of those persons assuming the role and responsibilities of a contract advisor for professional athletes. The qualifications centered on a contract advisor's educ background and professional prep. A questionnaire was developed and sent to 100 ARPA members; 69 were returned. Results indicated that the ARPA members who responded were, on ave, 42 yrs of age, male, and white. They had an ave annual income in the $80,000 to $99,999 range. 72% recommended a baccalaureate degree as the optimal level of educ needed to be a competent contract advisor; they rated a major or minor in sports admin/management as essential. They rated an

internship in a sports management firm as essential to be a competent contract advisor. Having players' association certification, attending seminars concerning contract negotiations for professional athletes, and conducting research concerning contract negotiations were also rated as essential. The ARPA member respondents were of the opinion that contract advisors should be subject to a standard competency exam and also believed that contract advisors should be made to join one regulatory contract advisors association. They favored federal regulation of contract advisors over state regulation.

162. SNYDER, G.A. Dental hygienists' knowledge, attitudes, and infection control practices in relation to AIDS and AIDS patients. PhD, 1992. (M.R. Levy)

Although much has been published concerning guidelines for infection control in the dental environment, limited documentation is found on dental hygienists' attitudes toward AIDS patients and their knowledge of and actual clinical infection control practices to prevent disease transmission to either themselves or their patients. A self-admin survey questionnaire, with fixed-alternative responses, was mailed to a random sample (n=300) of licensed practicing dental hygienists in Pennsylvania to document their infection control practices, attitudes toward AIDS patients, and knowledge of clinical infection control practices. 220 questionnaires were returned for a response rate of 73.3%; however, 66 had to be excluded because the respondents were not currently practicing and thus did not qualify as Ss. Surveyed hygienists were quite knowledgeable about AIDS, had a comprehensive knowledge of AIDS infection control procedures, and possessed a moderate or high feeling of worry concerning the treatment of AIDS patients. However, there were only a few operatory and laboratory infection control procedures that a large percentage routinely practiced. These were: (1) the use of glasses, masks, and gloves (including rewashing hands and replacing immediately if a glove is punctured or torn), (2) the use of disposable items whenever possible, and (3) surface disinfection of light handles, instrument bracket trays (with all their receptables and control switches), and patient chair switches. Knowledge of infection control procedures for AIDS was found to be associated with the utilization of effective infection control practices. Accurate knowledge of the disease AIDS was not found to correlate with dental hygienists' attitudes toward AIDS patients. The use of appropriate infection control practices was found to be associated with less fear concerning the treatment of AIDS patients. In addition, hygienists' infection control practices varied according to their perception of patient HIV status.

163. STOPFORD, J.L. Effects of caloric restriction and resistive exercise on the resting energy expenditure of weight-reduced obese women. PhD, 1992. (Z.V. Kendrick)

The purpose was to investigate the effect of a 6-wk regimen of low caloric restriction and resistive exercise on the body comp and resting energy expenditure of obese F. 24 Ss were randomly assigned to one of 4 gps: control, diet, exercise, and diet plus exercise. Prior to, after 3 wks, and after 6 wks of intervention, body comp and resting energy expenditure were meas by body density and O_2 consumption, respectively. Diff between gps for the dependent variables were anal by ANOVA. The level of stat sig was set at $p<0.05$. Body mass decreased sig for the diet gp (-4.0 kg) and the diet plus exercise gp (-4.9 kg) compared with the control gp (-0.2 kg) and the exercise gp (2.4 kg). % BF decreased sig for the diet gp (2.7%) and for the diet plus exercise gp (4.0%) compared with the control gp (-0.5%) and the exercise gp (0.6%). Lean body mass increased for the exercise gp (1.0 kg) and the control gp (0.3 kg) compared with the diet gp (-0.2 kg) and the diet plus exercise gp (-0.3 kg). Resting energy expenditure sig decreased in the diet gp (-193 kcal/day) compared to the diet plus exercise gp (-52 kcal/day), the control gp (-8 kcal/day), and the exercise gp (6 kcal/day). Sig increases in strength were found in both the exercise gp and the diet plus exercise gp for all exercises. The control gp and the diet gp had essentially no changes in strength for all exercises. There was no advantage to adding resistive exercise to a low calorie diet for either body mass loss or body comp changes. Adding resistive exercise to a low calorie diet prevented the decrease in resting energy expenditure associated with caloric restriction. A low calorie diet did not affect the strengthening response of muscle to resistive exercise.

164. TAKAO, S.H. Reliability of peak torque values for shoulder internal and external rotation during eccentric and concentric loading using the Kin-Com 125E isokinetic dynamometer. MEd, 1991. (I.F. Kimura)

The purpose was to assess the physiological reliability of the Kinetic Communicator (Kin-Com) 125E isokinetic dynamometer as a modality for meas peak torque during concentric and eccentric loading of the shoulder rotator muscles. The dynamometer was used to test 23 uninjured, pain free, coll age M Ss. The right upper extremity was tested concentrically and eccentrically. Shoulder internal and external rotation were tested at a speed of 120° per sec. A practice session of 3 submax repetitions and one max repetition was admin to familiarize the Ss with the Kin-Com isokinetic dynamometer. Following 5-min rest periods, 5 max repetitions of randomly ordered concentric and eccentric contractions were performed. The Ss were retested at least 6 days after the 1st test session, in the order not tested previously. A 2-way ANOVA with repeated meas BMDP prog ($p<.05$) was performed on the peak torque data. The ANOVA F values indicated sig interactions at the $p<.05$ level with

regard to concentric and eccentric exercise and internal and external rotators during the test and retest. Simple effects tests were performed to determine where sig interactions occurred. Sig diff were seen between peak torque values of the shoulder internal and external rotator muscles when concentrically and eccentrically contracting during the test and retest. Sig diff were also seen between peak torque values of the shoulder internal rotators while concentrically and eccentrically contracting during the test and retest. Pearson Product Moment r were performed on peak torque data to evaluate the reliability between tests. R coefficients were r=0.89 and r=0.70 for concentric internal and external rotators, respectively. R coefficients were r=0.50 and r=0.73 for eccentric internal and external rotators, respectively.

165. THORPE, N.H. The identification of campus recreation or intramural programs offered at historically black colleges and universities to address the major health problems affecting African-American college students. EdD, 1992. (I. Shapiro)

The purposes were (1) to identify the perceptions of directors of campus rec or intramural prog on the extent to which the major health problems affecting African-Americans affect African-American (black) coll stdnts on campuses of historically black colleges and universities (HBCs & Us), and (2) to identify the extent to which the HBCs & Us offer campus rec or intramual prog to address the major health problems affecting their African-American coll stdnts. 90 HBCs & Us were asked to participate. A survey questionnaire instrument was developed and mailed to the directors of campus rec or intramurals of 90 HBCs & Us in the US that offer bachelor's degrees. The data were coded and anal using the Statistical Package for the Social Sciences (SPSS), Version 10. For research questions 1, 2, 3, 4, and 5, descriptive stat (i.e., frequencies, percentages, means, and rank order) were used to report the results. For research questions 6 and 7, chi-square and Pearson product-moment r were utilized. There is no relationship between the no. of prog offered at HBCs & Us to address the major health problems of their African-American coll students and the no. of yrs of experience of the campus rec or intramural directors. There is no relationship between the extent to which campus rec or intramural directors at HBCs & Us believe that their institutions should offer campus rec or intramural prog to address the major health problems affecting their African-American coll stdnts and the no. of campus rec prog offered at HBCs & Us.

166. TSOLO, D.A. The relationship between parental participation and the severity of health indicators among mentally retarded school-aged institutional residents. EdD, 1992. (J. Segal)

The purpose was to examine and assess the relationship between parental participation—operationalized to mean parent letters/calls to the institution

and institution letters/calls to parents—and health status indicators of mentally retarded (IQs below 75) school-aged residents of an institution in the northeastern region of the US. The 75 Ss were selected from a pop of 250. Selection was random, but without replacement. The research design was a combination of survey (using a questionnaire to collect data) and participation/observation (the researcher was employed at the institution throughout the period of the study). Data were collected over a one-yr period from client files using the questionnaire. Additional data were obtained from the nursing and client care staff. In assessing the hypotheses, only documented multiple verifiable data were used. Indications in the lit seemed to support the assumption that parental participation occurred at a frequency rate of 40%. Since parental participation did not entail substantial outlays in terms of time and money, it was assumed that a higher participation frequency would be obtained, hence use of directional hypotheses. The hypotheses examined assumed there would be a positive r between parental participation and several factors, including no. of yrs the client was a resident at the institution; client age; severity of primary diagnosis (invariably mental retardation); severity of secondary diagnoses; no. of medications prescribed for client; the severity of illness(es), if any, over the observation period; the presence and severity of maladaptive behaviors; and lastly, the presence/absence of several health skills and factors (e.g., hand washing skills). The Pearson product-moment r coefficient was used to assess correlation. The findings seem to support other findings in the lit suggesting minimum parental involvement (40% average). Participation did not seem to correlate sig with any single health factor.

167. WAGNER, D.R. Physiological response of trained cyclists to various cycling handlebar postures. MEd, 1991. (R.A. Berger)

The purpose was to examine the diff in the physiological response of trained cyclists to 3 diff cycling handlebar postures, where aerodynamics was not a factor. The variables examined were oxygen consumption, oxygen consumption per kg of BW, metabolic rate, respiratory exchange ratio, tidal volume, breathing frequency, pulmonary ventilation, carbon dioxide production, HR, BP, and rate of perceived exertion. The exp pop consisted of 7 M, well-trained, competitive cyclists. The handlebar postures tested had the Ss (1) ride in a semi-erect position with hands on the top of traditional handlebars (tops), (2) ride with hands on the downturned portion of traditional handlebars in a deep forward lean position with upper body wt supported by the hands (drops), and (3) ride with elbows rested on aero handlebars in a deep forward lean position with upper body wt supported by the elbows (aero). With the order of testing postures randomly selected, Ss completed the same submax test in each of the positions. Ss rode their own bicycles on a wind load simulator. The test consisted of a 5-min rest period, 5-min warm-up, 20-min work bout, and 5-min cool-down. Data were anal for the 20-min work bout, during which the Ss rode a 78.0 inch gear (53 x 18) at 90 rpm. An ANOVA for repeated meas showed

no sig diff among the 3 handlebar positions. It was concluded that altering the upper body position of a cyclist does not sig affect the metabolic requirements of cycling in an environment where wind is not a factor.

168. WARRELL, T. The identification of the minimum qualifications for tennis teaching professionals to be hired at managed tennis facilities in the United States. EdD, 1992. (M.W. Jackson)

The purposes were to (1) identify what the minimum qualifications should be for a tennis teaching professional to be hired at tennis facilities managed by club administrators and (2) determine if diff in perceptions exist between the tennis teaching pros and club admin at those facilities as to what the minimum qualifications should be. The following research questions were answered. (1) Tennis teaching pros and club admin place a higher standard on the minimum qualifications needed by head tennis teaching pros to be hired at managed tennis facilities than they place on the minimum qualifications for assistant tennis teaching pros. The higher standards applied to all 7 indices: academic background, certification status, skill and playing level, teaching experience, nonteaching tennis-related activities, personality, and admin skills. (2) Diff in the perceptions of what the minimum qualifications should be for head and assistant tennis teaching pros: exist between tennis teaching pros and club admin; exist between certified tennis teaching pros and noncertified tennis teaching pros; do not exist between admin of indoor tennis clubs, outdoor tennis clubs, indoor/outdoor tennis clubs, and country clubs; do not exist between teaching pros with an academic background in athletic areas and those with an academic background in nonathletic areas; exist between tennis teaching pros age 35 yrs or younger and those older than age 35 yrs; do not exist between F and M tennis teaching pros; and exist between club admin with teaching experience and those with no teaching experience. (3) The perceptions of tennis teaching pros and club admin as a total gp vary by: the no. of yrs experience in the tennis industry; geographical area; and urban, suburban, and rural settings.

TEXAS A&M UNIVERSITY
COLLEGE STATION, TEXAS

169. ADAMS, J.L. Maximal power output on the bicycle ergometer: Its relationship to selected strength and aerobic capacity measurements. PhD in Physical Education, 1991. (W.S. Barnes)

170. ANDERSON, M.L. The influence of psychiatric nursing professionals on empathy of psychiatric nursing students. PhD in Health Education, 1990. (N.G. Schmidt)

171. DESPAIN, R.E., JR. An historical analysis of the life and professional career of John William Heisman, 1869-1936. EdD in Physical Education, 1991. (J.M. Chevrette)

172. HOOVER, L.D. The effects of a selected mental challenge on the fluid intelligence, perceived health status, and affective functions of selected Texas A&M University retirees. PhD in Health Education, 1991. (J.R. Elledge)

173. KOHL, R.M. Pew revisited: Acquisition of hierarchical control as a function of observational practice. PhD in Physical Education, 1990. (C.H. Shea)

174. LOVELACE-CHANDLER, B.R. The effects of neonatal hydrotherapy on selected vital signs. PhD in Health Education, 1990. (L.D. Ponder)

175. SNOWDEN, S.R. The effect of the lead leg plant on factors affecting distance on kickoffs in football. PhD in Physical Education, 1991. (L.J. Dowell)

176. VAN DUSER, B.L. The effect of oral smokeless tobacco on the cardiovascular and metabolic responses in humans during rest and exercise. PhD in Physical Education, 1991. (J.M. Chevrette)

TEXAS WOMAN'S UNIVERSITY (A. UHLIR, J. PYFER)
DENTON, TEXAS

177. AKINS, A.S. Dancing in Dixie's land: Theatrical dance in New Orleans, 1860-1870. PhD in Dance, 1991, 376 pp. (J.D. LaPointe-Crump)

Objectives were to identify the dancers and principal works, relationship of these works to other theatrical offerings, and the influence the Civil War and Reconstruction Era had on theatrical productions in New Orleans. Theatres studied were the Academy of Music, St. Charles Theatre, Varieties Theatre, and French Opera House. Methodology included surveying the development of theatrical dance prior to the Civil War and systematically reviewing New Orleans newspapers, playbills, and examples of critical scholarship. Throughout the process of analysis, verification, and criticism, changes in theatrical dance that occurred during the decade were determined. Prior to war, dance was most commonly performed within other productions or as entr'acte/divertissement entertainment; ballet, character, social, and minstrel dancing were the most popular forms. Theatrics dwindled with the onset of war and halted in April 1862 when New Orleans was seized by Union troops. Beginning with the 1862-63 season, theatres reopened and audiences enjoyed minstrel shows, pantomimes, extravaganzas, burlesques, spectacles, and variety shows. By end of the war, theatre flourished, and audiences demanded variety. New forms of spectacles,

pantomimes, and burlesque comedies swept the country. Dancing, particularly ballet, was pivotal in their success. Despite the austere political climate, New Orleans' productions rivaled those in New York and audiences saw all the star attractions of the era such as Marie Zoe, Lotta Crabtree, G.L. Fox Pantomime Troupe, Lydia Thompson Burlesque Troupe, Martinetti and Marzetti Pantomime and Ballet Troupe, Buckley Minstrels, and Giuseppina Morlacchi Ballet Troupe.

178. ALBERICO, J.G. Perceptions of professional nursing practice. MS in Health Sciences Instruction, 1991, 55 pp. (B.J. Cramer)

This study was conducted to meas hospital-based staff registered nurses' perceptions of professional nursing practice. The Professional Nursing Practice Attitude Inventory was developed by the researcher to meas perceptions of nursing practice between experienced nurses and those new to the profession. Results indicated that there was no diff in perceptions of professional nursing practice between experienced registered nurses and those new to the profession.

179. ARNOTT, E.M. Nurse case management of workers' compensation injuries: A strategy toward corporate cost containment. MA in Health Education, 1991, 178 pp. (L. Kaplan)

This post hoc comparative study investigated whether there would be a sig diff in the total workers' compensation medical costs and the no. of litigated workers' compensation cases as a result of the implementation of a pilot Nurse Coordinated Action and Response to Employees (CARE) Prog. The Wilcoxen matched-pairs signed rank test was used for nonparametric anal of the pertinent data released by Company X for this research. Anal of data revealed no sig diff at the .05 level in the prepilot benefit anal. However, Company X management was pleased with the amount and quality of the benefits of the Nurse CARE Prog and, as a result of this study, will continue to fund the prog for two additional yrs.

180. BOLT, R.L. Nurses' attitudes toward computer usage at the work site. 1991.

The prob was to determine diff in nurses' attitudes toward computers between nurses of diff demographic backgrounds: (a) age, (b) educ background, (c) no. of yrs employed as a nurse, (d) no. of yrs employed at the institution being surveyed, and (e) type of nursing unit currently working on. Stronge's Nurses' Attitudes Toward Computerization Questionnaire, a Likert-type questionnaire, was utilized for data collection. The first part was an attitude scale related to nurses' attitudes toward computers. The second part contained questions surveying selected demographic variables. The 51 nurses who responded

revealed that a majority of the nurses had positive attitudes toward computers. The lowest possible score was 20 and the highest was 100. Results showed one nurse scored 51 and three nurses scored 100, with the mean score being 76.76.

181. BRANDON, K.A. A study of the impact of computer-assisted instruction on test scores of medical laboratory technician students. MS in Health Science Instruction, 1991.

This study investigated the diff in test scores between those medical laboratory technician (MLT) stdnts who participated in computer-assisted instruction (CAI) and those MLT stdnts who did not. The study was designed to make comparisons to determine the effectiveness of CAI as a supplemental instructional strategy. MLT stdnts at 2 comm coll participated. The Medicomp test was admin to the 2 gps of stdnts as a pretest and posttest. The 2 gps then followed a prescribed plan of intervention. Descriptive stat and inferential stat were used to anal the test scores of the 2 gps. Among this sample of stdnts, there was no diff in the test scores between the 2 gps. In conclusion, CAI did not make a diff in the test scores of the MLT stdnts.

182. BROWDER, K.D. A comparison of movement efficiency between active and inactive females during treadmill walking. PhD in Kinesiology, 1992, 157 pp. (J. Wilkerson)

Movement efficiency (ME) is related to the mechanical and physiological efficiency of the individual. Many researchers have attempted to develop appropriate models for the determination of these various efficiencies. However, few have applied those models to pop outside athletics. The purpose of this study was to compare ME, metabolic cost (MC), and mechanical work (MW) of walking between active (ACT) and inactive (INCT) F. Two gps (ACT and INCT) of 12 F participated in a 10-min submax walking test. Max VO_2 and anthropometric data were obtained during a prior testing session. To eliminate inefficiencies related to anthropometric diff, Ss selected a walking pace most comfortable for them. Submax VO_2 and 3D film records (100 fps) were obtained during the final min of the test. MC, MW, and ME were calculated using a method similar to that recommended by Williams (1983). Data indicated that ACT was younger, taller, leaner, and more fit than INCT. ACT also selected a slightly faster walking pace (61.7 m/min) than did INCT (57.2 m/min). No sig diff was found in MW, MC, and ME between gps. A power anal revealed that the stat power was only .20, indicating that there was an 80% chance of a Type II error. This was a function of the small sample size. The data do suggest, however, that a new approach may need to be taken for determining physiological and mechanical efficiency of individuals.

183. BURKE, K.L. Issues for the year 2000 as determined by graduate health education professors: An application of the Delphi technique. PhD in Community Health Education. 1991, 204 pp. (L. Kaplan)

From the pop of 287 full-time, graduate HE faculty, who taught during the 1990-1991 acd yr, 53 faculty were identified as leaders in universities offering doctoral degrees in HE/studies/ sciences. Of the 20 who agreed to participate in the study, 15 faculty were retained (83%) throughout the 5-month, 4-round Delphi study. Content anal and categorization applied to data collected in Round 1 provided a foundation for development of item statements in 3 areas: (A) issues related to HE which faculty believed would affect their teaching; and (B and C) characteristics of stdnts and classrooms/learning environments which faculty expect in the year 2000. In Rounds 2, 3, and 4, participants ranked expectations identified in each previous round. Of the 10 top-ranked items in Area A, the top item was: "There will be an older population." Of the 5 top-ranked items in Areas B and C, the top item was: (B) "There will be an increase in multi-ethnic students"; and (C) "There will be an increase in the use of technology." The Delphi method was an effective tool for determining issues related to HE and arriving at consensus.

184. CORRIGAN, A.E. A descriptive analysis of corporate health promotion activity evaluations. PhD in Health Education, 1992, 146 pp. (L. Kaplan)

Evaluation has been recognized as a basic component of health promotion prog design; however, its implementation into ongoing worksite health promotion activities has been questioned. This study was conducted to determine what types of evaluation, if any, were conducted by health promotion professionals employed in worksite health promotion prog. A survey tool was developed specifically for this study and mailed to 587 members of the Association for Fitness in Business, who were listed in the 1990-1991 directory of members and who were identified as corporate in-house professional members. 221 (38%) usable responses to the questionnaire were received. Formal evaluations of the health promotion activities were conducted by 146 (67%) survey respondents. Evaluation activities were used by survey respondents to review and/or revise the health promotion activities, to determine strengths and weaknesses of the activities, and to improve the effects of the health promotion activities. Reasons evaluations were not conducted included a lack of personnel, a lack of financial resources, a lack of time to conduct the evaluation, and a lack of interest by supervisors/executives.

185. DeMEO, C.V. Frequency of use of an onsite fitness center in relation to job satisfaction and absenteeism. MA in Health Education, 1992, 116 pp. (L. Kaplan)

This study, conducted at the Xerox facility in Lewisville, TX, examined utilization of an onsite fitness center in relation to job satisfaction and absenteeism. A secondary problem was to identify reasons for nonparticipation in fitness center activities among employees. Of 281 survey packets distributed, 72 sets of returned questionnaires were complete for anal. Two instruments were used: the Job Descriptive Index (Smith et al., 1969) and the Employee Data Questionnaire, a tool developed by the researcher. Sig r were found between the employees' self-reported levels of activity and satisfaction with work (r=.3058) and pay (r=.3642) as meas by the JDI. Reasons for nonparticipation included: prolonged work hrs, fitness needs were met elsewhere, and lack of motivation. There was a nonsig negative r between frequency of use of the fitness center and days missed because of illness.

186. FRANKS, D.W. Self-esteem and adolescent pregnancy. 1991.

Adolescent pregnancy and accompanying problems have been well defined in the lit. Previous studies have indicated a need to address this societal issue to ascertain the degree to which this pop is being served. The purpose of this study was to explore the concept of self-esteem as it pertained to pregnancy with adolescents. There were 190 Ss between ages 15-17 yrs old surveyed, of which 94 were pregnant. Anal of the data indicated that there is a sig diff in the level of self-esteem in pregnant and nonpregnant adolescents.

187. HILLIER, J.L. The effectiveness of case studies as an independent study aid for medical laboratory technology students. 1991.

This project explored the effectiveness of case studies as an independent study aid for medical laboratory technology stdnts. 80 stdnts enrolled in MLT 137: Immuno-hematology at El Centro Coll, Dallas, TX participated in this study. The research questions investigated focused on the stdnt preference, the effectiveness, and the perceived stdnt satisfaction for this method. A case study booklet containing 10 case studies was designed to cover the objectives for the course. The test gp composed of 40 stdnts utilized the booklet as an independent study aid. When pretest and posttest gain scores were compared between the test gp and the control gp, a sig diff in performance was determined by the t test. In addition to the improved performance, the stdnt preference and satisfaction with this method were affirmed.

188. HONG-JOE, C.M. Discipline-based dance education: A translation and interpretation of discipline-based art education for the discipline of dance. MA in Dance and Related Arts, 1991, 70 p. (P. Hanstein)

A discipline-based dance education (DBDE) model curr framework for K-12 educ is presented based on a translation and interpretation of the conceptual core of the discipline-based art education (DBAE) approach. The study encompasses an investigation and presentation of a process and inquiry oriented discipline-based approach to dance education, whereby the modes of inquiry and content concepts for the student as performer, choreographer, historian, critic, and aesthetician within the dance discipline are clearly identified and delineated. The interrelationship of these roles is explored in relation to DBDE with associated metaphoric analogies and charts which focus on the imperative of keeping the art of dance-making at the center of the study of dance as a discipline. A DBDE curr framework is evolved together with suggestions for the implementation of the learning and inquiry processes within the discipline. Conclusions are drawn as to the viability of DBDE as a curricular approach for K-12 educ and the consequent issues, implications, and provisions necessary for the future development of a discipline-based approach for dance educ in schools.

189. JONSON, L.M. Self-perception and motor proficiency of hearing-impaired children. MS in Physical Education, 1991. (C. Sherrill)

The purpose was to determine interrelationships among self-perception, motor proficiency, and personal variables of 31 hearing-impaired children (16 girls, 15 boys) who attended the Oklahoma School for the Deaf. Ages ranged from 9 to 15 yrs of age ($\underline{m}$=12.8). Hearing losses ranged from 60 dB to >120 dB ($\underline{m}$=94.96). Instruments were the Self-Perception Profile for Children (SPPC), which is comprised of 6 subscales, and the Bruininks-Oseretsky Test of Motor Proficiency-Short Form (BOTMP-S), which is comprised of 14 motor items. Multiple $\underline{t}$ tests, using an alpha of .002, revealed no sig diff between genders; therefore data were combined for further anal. Pearson product moment r ranged from .00 to .57. Sig relationships were found between (a) perceived physical appearance, age, and BOTMP-S dynamic balance; (b) age, long jump, card sort, and dotting circles of the BOTMP-S; (c) static balance of the BOTMP-S and hearing loss; (d) gender and the BOTMP-S long jump; and (d) perceived scholastic competence and the BOTMP-S standard score. It was concluded that there are few sig relationships between self-perception, motor proficiency, age, gender, and hearing loss.

190. KUCK, L.A. Preschool health education: Impact on health knowledge and health locus of control. PhD in School Health Education, 1991, 85 pp. (R. Tandy)

The purpose was to examine the impact of a comprehensive HE prog on young children's health knowledge and health locus of control. A secondary purpose was to determine any relationship between children's health knowledge, health locus of control, and mother's age at first parturition. Children who were 4 to 5 yrs of age and enrolled in the Tyler Independent School District Project Head Start participated in the quasi-experimental study. Anal of the data obtained from the 70 children in the experimental and comparison gps indicated that a preschool health curr provided in 19 1-hour weekly sessions does not sig impact young children's responses to the Health Knowledge Scale or the Pictorial Children's Health Locus of Control Scale. In addition, no sig relationship was found between children's health knowledge, health locus of control, and mother's age at first parturition.

191. LAMBETH, K.K. Job satisfaction among secondary level teachers. MS in Kinesiology, 1991, 59 pp. (B. Myers)

Utilizing the paired comparison instrument developed by Lindahl (1949) to measure job satisfaction, the present study examined the factors tchrs said were important with what their supervisors thought the tchrs would say was important to their job satisfaction. Additionally, the questions of number of yrs of teaching experience, gender, and level of teaching assignment (JHS or HS) were examined with respect to factors affecting job satisfaction of tchrs. Based upon data provided by 323 secondary-level tchrs, the findings indicated that the tchrs ranked the factors (1 to 10) as: good wages, appreciation, job security, management loyalty, working conditions, interesting work, understanding, tactful disciplining, promotion, and in on things. The 34 supervisors and secondary administrators indicated that they thought the tchrs would rank the job satisfaction factors in the following 1 to 10 order: appreciation, understanding, management loyalty, working conditions, job security, in on things, good wages, interesting work, tactful disciplining, and promotion. Within the delimitations of the study, the data warrant 3 conclusions. First, the Irving ISD secondary-level tchrs consider good wages, appreciation, and job security as the top factors of job satisfaction. Second, the administrators do not have a clear perception of what tchrs want from their jobs. Third, the values secondary-level tchrs place on job satisfaction are not profoundly affected by personal factors such as gender, yearsrs of teaching experience, and level of teaching assignment.

192. PARKER, J.T. Marijuana use by adolescents in a rural Texas community: A psychosocial perspective. PhD in School Health Studies, 1990, 106 pp. (L.E. Kaplan)

The purpose was to collect and examine baseline data concerning the extent of usage as well as the psychosocial roles of parental, peer, and school influence, religious affiliation, and religiosity on marijuana use by adolescents in a rural TX community. This study identified marijuana use as a common adolescent health behavior. An adolescent pop of 250 9th and 10th grade stdnts, randomly selected from HE classes, was surveyed. The instrument used was the Adolescent Drug Use Inventory. A Spearman rank r was employed to determine the relationship between parental, peer, and school influence, as well as religiosity. The Phi coefficient determined relationships between marijuana usage and gender, race, with whom the adolescent lived, parental relationship, birth order, no. of people residing in home, and religious affiliation. None of the Spearman rank r's was sig at the.05 level. Phi r's ranged from low to moderate (.097 to .663). The variables meas by the survey instrument were not related to marijuana use as defined by lifetime frequency usage.

193. PITTMAN, N. Stress and job satisfaction of nurse managers in hospital settings. MS in Health Science Instruction, 1992, 58 pp. (B. Cramer)

Stress as a variable related to job satisfaction appears to assume an important role in society. The problem of this study was to determine whether there was a relationship between stress and levels of job satisfaction among nurse managers in hospital settings. A correlation study examined the effects of the independent variable, job satisfaction. A sample of 35 qualifying nurse managers was selected from 3 hospitals. The Holmes and Rahe Social Readjustment Rating Scale for stress and Brayfield and Rothe's Index of Job Satisfaction were used to meas the relationship of stress to job satisfaction. This study revealed that nurse managers in a hospital setting with higher job satisfaction scores did not have lower stress scores.

194. REEVES, L.P. Motor ability testing of speech handicapped preschool children: A validation study. PhD in Physical Education, 1991, 200 pp. (B. Gench)

The problem of this investigation was to determine if the Peabody Developmental Motor Scales (PDMS) (Folio & Fewell, 1983) and Motor Profile (MP) (Bruininks, Rynders, & Ilmer, 1990) are valid assessment tools of gross and fine motor skills for preschool children with a speech handicap. Children between the ages of 3.0 and 5.11 yrs (N=60) with a speech handicap were selected from public school districts in the north Texas region. Each S completed both tests within 5 consecutive school days. According to the results of factor anal technique, the PDMS is a valid assessment tool of gross and fine

motor skills for preschool children with a speech handicap. The MP is not a valid assessment instrument of gross and fine motor skills for preschool children with a speech handicap. Based on the results of the MANOVAs, the PDMS and MP tend to discriminate among the 3 age gps. According to the results of the one-sample t-tests, there was a tendency for speech handicapped children to perform the PDMS gross and fine motor skills lower than the norm at each age level. MP gross motor skill performance of the preschool children with a speech handicap was lower than the national norms at each age gp.

195. TENNENT, S.R. An evaluation of the effects of a smoking prevention program on middle school students' knowledge and attitudes concerning cigarette smoking. MA in Health Studies, 1991, 65 pp. (J. Baker)

This descriptive study was conducted to determine if there was a diff in middle school Ss' pretest and posttest scores on meas of knowledge and attitudes concerning cigarette smoking, before and after the presentation of a smoking prevention prog. Data were obtained from 63 middle school stdnts, enrolled at a large middle school in the southeast section of Fort Worth, TX, during the spring of 1991. 32 stdnts constituted the experimental gp, and 31 stdnts constituted the comparison gp. 2 hypotheses were tested. A 45-min HE prog on smoking prevention was presented to the experimental gp. Pre- and posttest knowledge and attitudes were meas by the Smoking Knowledge Questionnaire (SKQ) and the University of Illinois Attitude-Belief Scale on Smoking (ABSS). Each S completed a 58-item questionnaire comprised of 4 demographic questions, 10 multiple-choice knowledge questions, and 44 attitude-belief questions. The data were anal using the BMDP stat package. Pooled t-tests were used to test the hypotheses, at a .05 level of sig. Based on the results, Ss in the experimental gp scored higher on posttest meas of knowledge and attitudes than Ss in the comparison gp.

196. TRAINOR, C.R. A comparison of perceived levels of occupational stress in employed women. MA in Health Studies, 1990, 68 pp. (J. Baker)

The purpose was to determine if there was a diff between perceived levels of occupational stress between the experimental gp of employed, married, F Jazzercisers, and the comparison gp of employed, married, F sedentary Ss. Three null hypotheses were tested. The Occupational Stress Index (OSI) included 3 subscales, and a total of 78 OSIs with accompanying demographic forms were distributed to gp Ss. Of these, 8 were eliminated in order to obtain equal sample sizes of 35 Ss in each gp. The data were anal using the BMDP stat package and included descriptive stat. Multiple ANOVA was used to test the hypotheses, at a .05 level of sig. No diff was found in perceived levels of occupational roles stress or personal strain between employed, married F who Jazzercised and those who were sedentary. A stat sig diff was found in personal coping resources between gps.

UNIVERSITY OF ALABAMA **(J. SMITH)**
TUSCALOOSA, ALABAMA

197. BUHRE, U.T. The effect of a 60-minute duration exercise, at the intensities of the lactate and the individual anaerobic thresholds, on the cardiovascular drift. EdD in Health and Human Performance, 1992.

The purpose was to examine the inter-subject variability on the relative change in heart rate (RCHR), at the lactate (LT) and the individual anaerobic thresholds (IAT), during 60 min of treadmill running, in elite athletes. 8 runners (mean VO_{2max}=70.08 ml/kg/min+9.08) volunteered for the study. They performed 2 incremental exercise tests to determine LT, IAT, and VO_{2max}, and 2 60-min exercise bouts on the treadmill, at running speeds corresponding to LT and IAT. Blood lactate, HR, plasma volume, core temperature, and VO_2 were meas during exercise. Results showed that at both LT and IAT, RCHR was sig due to exercise duration, and inter-subject variability. Exercise duration accounted for 73.7% and 87% of the variance, respectively. When examining the effect of both intensities on RCHR, it was found that duration and intensity were sig. Duration accounted for 76.7%, and intensity accounted for 4.5% of the variance. There were sig diff between all meas of duration, and all meas of intensity. Changes in blood lactate, VO_2, plasma volume, and core temperature occurred as expected. It was concluded that, although running intensity and inter-subject variability have a sig effect upon RCHR, duration of exercise accounts for the largest proportion of the variance.

198. BRONSTEIN, M.M. The effect of a split exercise session on excess postexercise oxygen consumption in young obese women. EdD in Human Performance, 1992, 87 pp. (J. Smith)

The investigation meas the excess postexercise oxygen consumption(EPOC) of obese F during recovery from exercise. Ss were 12 untrained obese (mean percent body fat=37.5%)F, aged 18 to 33 yrs. Mean VO_{2max} was 32.2 ml/kg/min and mean resting VO_2 was 2.37 ml/kg/min. Ss walked at 3 mph on a treadmill, grade-adjusted to elicit a 75% VO_{2max} workload for each individual during 3 exercise/postexercise tests. 1 test session consisted of 30 min of continuous exercise and meas of EPOC, with the other being 2 15-min exercise sessions with EPOC meas following each exercise session. Mean EPOC values were: 74.4(±44.1)ml/kg/min,60.0(±30.9)ml/kg/min, and 83.7(±56.3)ml/kg/min, for the 2 15-min and 30-min exercise sessions, respectively. Multivariate ANOVA indicated no sig diff among the 3 EPOCs ($F=1.31$, $p<0.0714$). Evaluation of these data as ratios of EPOC to exercise oxygen consumption revealed that the shorter exercise sessions produced EPOCs almost twice as large as the EPOC from the longer session (23% & 20% vs 12%, respectively).

199. KIME, J.C. Plasma and erythrocyte lactate concentrations in humans after submaximal exercise. MA in Physical Education, 1990, 43 pp.(P. Bishop)

This study examined the kinetics of lactic acid transport between the plasma and the red blood cell (RBC) in vitro to assess the effectiveness of lactate transfer across the RBC membrane. 7 Ss (4 M, 3 F) performed 2 submax cycle ergometry tests at intensities that elicited a low (3±1mmol/l) and a moderate (6±1mmol/l) blood lactate concentration. Lactate concentrations for blood, plasma, and blood or plasma treated with a lysing agent, Triton X-100, were meas and expressed relative to water content at 0, 8, and 20 min postexercise for both tests. Repeated meas ANOVA revealed that the plasma to RBC lactate ratio did not change from 0 to 20 min postexercise for both the low or moderate concentrations nor was it sig diff at resting, low, or moderate lactate concentrations. Expressing lactate concentrations relative to water eliminated diff among sample types. RBC membrane lactate transport mechanisms are effective in maintaining a constant lactate ratio despite increasing lactate concentrations.

200. LUNDELL, L. Nutritional knowledge, attitudes, and practices and the actual dietary intakes of female college athletes. MA in Health and Human Performance Studies, 1991.

The objectives were to evaluate and examine the relationships between actual dietary intakes of F coll athletes and their nutritional knowledge, attitudes, and practices. Data for the study were obtained with a 3-day food record to meas actual dietary intake and a validated questionnaire to meas the knowledge, attitudes, and practices of the 34 varsity athletes. Stated hypotheses were tested using Pearson r coefficients. Results of the study indicated that the F athletes had reasonably adequate dietary intakes, although several selected dietary components were found to be below recommended standards. Mean energy intake (kcal) fell below the recommended allowance, but protein intake was adequate. Fat intake for most athletes was below the current guidelines of 30% of total calories. Of particular concern were the low intakes of fiber, calcium, zinc, and complex carbo. Scores on the knowledge test averaged 50.5%, while attitudes and practices concerning nutrition were positive. Nutritional attitudes were positively associated with dietary intake and nutritional knowledge and practices. However, no r was found between nutritional knowledge and dietary intake or practices. Despite the level of nutrition knowledge, the athletes were aware of 2 basic concepts to maintain their weight: increasing carbo by eating pastas, breads, and cereals, and decreasing fat by consuming less meat, eggs, whole milk products, butter, margarine, or heavy dressings. It was concluded that F varsity athletes might benefit from nutrition intervention which addresses an awareness of the importance of adequate energy intakes to ensure adequate protein, vitamins, minerals, and fiber and selection of nutrient-dense foods to maintain nutritional adequacy, particularly for those with lower caloric intakes.

201. PUJOL,T.J. The effects of exercise on low-density-lipoprotein-receptor mediated clearance and atherosclerotic lesion in dietary induced hyperlipidemic NZW rabbits. EdD in Human Performance Studies, 1991, 82 pp. (R.C. Westerfield)

20 NZW rabbits were randomly assigned to exercise and sedentary groups. During a 12-wk treatment period the Ss were fed a 0.5% cholesterol diet and exercise Ss were trained on a small animal treadmill. Low-density-lipoprotein (LDL) fractional catabolic rate (FCR) was determined by radiolabelling native and methylated samples. Atherosclerosis was determined as a percentage of lipid stainable area on the intima of the thoracic aorta. T-tests indicated no sig diff between exercise and sedentary gps FCR for the first 12 hr samples. The FCR for the sedentary gp was sig ($p<0.05$) higher over the final 12 hrs. The exercise gp had sig ($p<0.05$) lower atherosclerotic involvement in the aortic intima. The results indicate that exercise does not increase LDL-receptor activity but does attenuate atherosclerotic development. This indicates that exercise has an effect on atherosclerotic development beyond the control of plasma lipoprotein levels.

UNIVERSITY OF CALIFORNIA AT BERKELEY
BERKELEY, CALIFORNIA

202. LINDERMAN, J.K. Glucoregulation and work performance in gluconeogenesis-inhibited iron deficient rats. PhD in Physical Education, 1991. (G.A. Brook)

The purpose was to evaluate glucoregulation and work performance in gluconeogenesis-inhibited iron deficient rats. To evaluate the hypothesis that iron deficiency results in increased dependence upon gluconeogenesis for maintenance of euglycemia, F Sprague-Dawley rats were injected with mercaptopicolinic acid (MPA), a known inhibitor of gluconeogenesis (Di Tullio et al.,1974). In addition, to evaluate the hypothesis that an increase in lactate supply was responsible for increased gluconeogenesis in -Fe rats, additional rats were injected with a specific inhibitor of β_2 adrenergic receptors (ICI 118, 551) (Trudeau et al., 1989). F Sprague-Dawley rats were obtained at 21 days postpartum and assigned into dietary gps that were either iron sufficient (50 mg Fe_2+/kg diet, +Fe) or iron deficient (15 mg Fe_2+/kg diet, -Fe). At approximately 49 days of age rats were injected with either MPA (300 mg/kg BW, 50 mg MPA/ml350 mM HC03-) ICI 118, 551 (1.0 mg/kg BW; 1 mg ICI 118, 551/ml 0.9%NaCl) or the injection vehicle (SHAM). Animals were studied at rest or after 30 min of treadmill running at 13.4 m/min on a level grade. Results are consistent with previous reports that glucose dependence is increased in resting -Fe rats (Brooks et al., 1987) and exercising anemic rats (Gregg et al., 1989). In the present study arterial glucose concentrations ([Glu]) were

9.4±0.8, and 8.6±0.5 mM (mean±SEM), in resting -Fe and +Fe SHAM-treated rats, respectively. Exercise decreased [Glu] 18% in -Fe rats, but had no affect on [Glu] in +Fe animals postexercise. Arterial glucose concentration was decreased 50% and 22% in resting -Fe and +Fe MPA-treated rats, respectively. Following exercise [Glu] was decreased 56% and 49% in -Fe and +Fe MPA-treated rats, respectively. Iron deficiency had no affect on arterial lactate concentration ([La]) at rest. However, [La] increased 35% due to exercise in -Fe SHAM-treated rats, and 71% in exercising -Fe MPA-treated rats. In contrast, [La] was unaffected by exercise, MPA treatment, or a combination of these 2 factors in + Fe rats. Arterial alanine concentration ([Ala]) was unaffected by exercise or MPA treatment in -Fe rats. However, [Ala] was reduced approximately 30% in resting and exercising +Fe MPA-treated rats. Collectively, the response of arterial concentrations of glucose and lactate reflect an increased dependence upon glucose metabolism in -Fe rats during exercise. Furthermore, results obtained in MPA-treated rats indicate that inhibition of gluconeogenesis had a more profound affect on maintenance of arterial glucose concentration in resting and exercising iron deficient rats. Taken in aggregate the results can be interpreted to support the following conclusions: 1) iron deficiency is associated with increased dependence upon glucose and gluconeogenesis at rest and during exercise; 2) increased lactate supply is primarily responsible for the increase in gluconeogenesis in iron deficient rats; 3) neuro-endocrine drive for gluconeogenesis is increased in iron deficient rats with gluconeogenic blockade or decreased lactate supply.

UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA

203. MARBURGER, L.K. Effects of low-intensity, pain-free exercise on muscle metabolism in patients with peripheral vascular disease evaluated by ^{31}P-NMR spectroscopy. MS in Exercise and Sport Sciences, 1992. (C. Stopka)

To evaluate the effects of low-intensity, pain-free exercise training on muscle metabolism in patients presenting with peripheral vascular disease (PVD), 7 Ss (mean age 65±2) with PVD participated in a 10-wk training prog. Data were collected before and after training during graded exercise testing (GXT) to evaluate the physiological response to an exercise. Doppler ultrasound techniques were used to evaluate the site and severity of the disease, and ^{31}P-NMR spectroscopy was used to evaluate the metabolic state of the calf muscle at rest and in response to exercise (n=5). The data collected were also compared to 5 age and sex matched normal controls (mean age 64±10). After training, Ss improved ($p \leq 0.05$) duration from 23 to 52 min, rate from 1.3 to 2.0 mph, and total distance walked from 0.5 to 1.8 mi. The time to claudication pain onset (CPO) and max walking time (MWT) during the GXT improved from 2.67 to 6.93 min and 10.23 to 12.49 min respectively ($p \leq 0.05$), while the rating of perceived exertion (RPE) decreased at CPO from 11 to 8 ($p \leq 0.05$). The

physiological response to the GXT remained constant, while CPO and MWT improved sig, indicating improvements in the efficiency of the working muscle. The ankle/brachial index (ABI) revealed a trend toward a sig improvement in blood flow ($p \leq 0.07$). Data collected by ^{31}P-NMR spectroscopy showed no sig diff between controls and claudicants nor between claudicants before and after training at rest; a sig exercise main effects in pH levels in claudicants; a sig interaction between controls and claudicants in PCr recovery levels; and a sig recovery main effect in PCr and pH levels in claudicants. The 10-wk low-intensity, pain-free training prog was successful in improving the functional capacity of PVD patients, and GXT response indicated an improved efficiency in the muscle tissue.

UNIVERSITY OF IOWA
IOWA CITY, IOWA

204. BARR, J.O. Neural versus muscular responses to isometric strength training of the triceps brachii. PhD in Physical Education, 1989. (D.H. Nielsen)

This study investigated neuromuscular mechanisms underlying strength development over 6 wks of isometric testing and training of the right triceps brachii. 18 right-hand dominant F Ss, 23.8±3.6 yrs old, were randomly assigned to control (weekly testing) or training (weekly testing and daily training) gps. The training gp daily performed 10 ramp isometric contractions progressed to max voluntary contraction (MVC) over 5 sec, held at MVC for an additional 3 sec. Weeky isometric tests (sessions 3-9) assessed: torque during max isometric contractions; triceps EMG/torque relationship break point position, max predicted EMG, lower and upper slopes of the bilinear triceps EMG/torque relationship; percent antagonist biceps activity; submax interpolated responses indicating muscle activation. Both gps showed sig improvements in triceps torque, 18% for the control and 29% for the training gp. Strength increases were sig greater for the training gp in sessions 5-9. Neural coordination among triceps heads was not sig altered. Both gps demonstrated sig break point shifts to the right with sig between gp diff at session 6, indicating a diff in neural recruitment. Max predicted EMG was sig greater for the training gp in sessions 5-9, indicating improved neural activation. Nonsig changes in upper and lower slopes indicated that muscular factors did not play a sig role relative to strength. There were no sig changes in antagonistic biceps muscle activity. Only meas of torque and EMG for the triceps lateral head had high reliability. This study supported neural factors as underlying acute strength changes associated with testing and training.

205. BLACKWELL, J.R. Grip pressure, wrist kinematics, and forearm electromyograms of expert and novice tennis players performing the backhand stroke. PhD in Physical Education, 1991. (K.J. Cole)

Humeral epicondylitis, often referred to as tennis elbow (TE), is a soft-tissue injury with pain at the humeral epicondyles. It is generally accepted that lateral TE is due to overload of the extensor carpi radialis brevis muscle. The incidence of lateral TE is greater in unskilled than skilled players, and due to previous qualitative reports, diff in behavior patterns of these gps were hypothesized. The purposes of this project were to investigate whether grip pressure, wrist angular motion, and forearm electromyographs (EMG) differentiate skilled and unskilled players and to discuss these diff in relation to TE development. Skilled and unskilled tennis players performed the backhand groundstroke. Meas variables included: 1) grip pressure integral values, 2) wrist angular kinematic trajectories, and 3) wrist flexor and extensor EMG. Results showed no gp diff in grip pressure integral values. However, skilled Ss tended to increase their grip rapidly prior to ball-racket impact, whereas unskilled Ss tended to use a more static grip. Skilled players showed greater wrist extensor EMG after impact than the unskilled gp and both gps showed greater wrist extensor EMG than flexor EMG overall. Unskilled Ss were in wrist flexion and ulnar deviation (adduction) while flexing and adducting the wrist at ball-racket impact. Skilled Ss were in wrist extension and radial deviation (abduction) while extending and adducting at impact. Unskilled Ss exhibited rapid wrist flexion due to ball-racket impact whereas skilled Ss exhibited wrist extension. These data imply that unskilled subjects may be more susceptible to injuries of the wrist extensor muscles because these muscles are at long lengths and lengthening at impact.

206. BLANPIED, P.R. The comparison of active plantarflexor muscle stiffness between young and elderly human females. PhD in Physical Education, 1989. (G.L. Smidt)

The purposes were to compare the plantarflexor stiffness 1) of young and elderly F, 2) at 4 velocities of stretch, 3) after 3 diff rates of prestretch force increase, 4) at 3 diff ankle positions, and 5) after a 6-wk plantarflexor strengthening exercise prog. 16 young (23-30 yrs) and 15 elderly (60-70 yrs) F were positioned prone with their left knee in 90° of flexion. A Kin/Com hydraulically powered dynamometer meas force and controlled ankle motion. Ankle angle was determined by double integration of an accelerometer output. Isometric plantarflexion force was increased in a ramp manner until 20%, 30%, 40%, 50%, or 60% of isometric max was achieved. The Kin/Com then rapidly moved their ankle from 6° of plantarflexion to 6° of dorsiflexion, stretching the plantarflexors. The young Ss went through additional testing to address purposes 2, 3, and 4. All Ss then exercised their left plantarflexors using a spring resisted exercise device for 6 wks, 3 times per wk. Stiffness was defined as the

slope of the torque to ankle angle relationship for the first 62 msec of stretch. This relationship was very linear except for a small portion at stretch onset which exhibited higher stiffness. No diff in plantarflexor muscular stiffness existed between the gps. No diff in stiffness was demonstrated at diff velocities of stretch. At higher prestretch torque levels, stiffness was less when the rate of muscle activiation was fast. Within the range used, stiffness appeared to be independent of ankle position. A 6-wk exercise prog increased the amount of torque that the Ss produced but did not appear to change the stiffness of the musculotendinous unit.

207. CHO, K.M. Attitudes of Korean national athletes and coaches toward athletics participation. PhD in Physical Education, 1990. (G.F. Hansen, D.R. Casady)

The purposes were to investigate the attitudes of Korean national athletes and coaches toward athletics participation and to compare the attitudes of Ss classified into various subgps according to the biographical data. The Stubbs Attitudinal Inventory was used to meas attitudes. This instrument was translated into Korean to obtain valid responses. The Ss were 313 Korean national athletes and 35 coaches who were members of 19 diff athletics teams and who were preparing for the 1990 Peking Asian Games. From Mar 16 through Mar 29, 1990, this investigator traveled to Korea to collect the data from the 528 potential Ss who were housed in the Taenung National Athletes' Training Village and 6 other training centers. The .05 level of sig was selected for testing the null hypotheses. A one-way ANOVA and follow-up Tukey/Kramer test were used. The major conclusions based on the stat sig findings are: 1) Korean national athletes and coaches have a favorable attitude toward athletics participation. 2) Korean national athletes and coaches have favorable attitudes toward the following 3 values of athletics participation: a) self-concept and character development, b) social and moral, and c) general. 3) Korean national athletes in dual court and team sports have more favorable attitudes toward athletics participation than do athletes in dual combative and individual sports. 4) Korean F national athletes have more favorable attitudes toward athletics participation than do M athletes. 5) Korean national athletes who have placed in worldwide competition have more favorable attitudes toward athletics participation than do athletes who have not placed. 6) Korean national coaches have more favorable attitudes toward athletics participation than do athletes.

208. FEDLER, J.M. The effect of a lifetime of physical activity on the quantity of bone in the canine. MA in Physical Education, 1989. (J.A. Maynard)

The purpose was to determine if a lifetime of activity would decrease the amount of bone lost through the normal aging process in the canine. 20 beagles, aged approx 11 yrs, constituted the animal model. 9 composed the runner gp and 11 the control gp. The runner gp exercised for 90 min 5 days/wk for 527

wks running an average of 3.3 km/hr on a motor-driven treadmill while carrying an approx load of 11.5 kg. The control gp was limited to normal cage activity in dog runs (43 sq.ft. of running area). At sacrifice, the 2nd and 5th metacarpal bones of the right front limb and the 2nd and 5th metatarsal bones of the right hind limb were collected. Anterior/posterior diameters (mm) and medial/laterial diameters (mm) at the midpoint were meas using a Browne and Sharpe Digit-Cal Mark II Universal Digital Caliper. The findings indicate that a lifetime of exercise sig decreases cortical porosity and marginally increases cortical area in old age. These results are apparently due to a decrease in the resorption process rather than an increase in formation. The results also indicate that the following histomorphometric parameters are highly correlated: bw and total area, bw and cortical area, bw and cortical bone, total area and total perimeter, total area and cortical area, total area and cortical bone, medullary area and medullary perimeter, cortical area and cortical bone, haversian canal area and porosity, resorption area and porosity, and resoption area and no. of resorption pits. Important inverse relationships occur between total area and % cortical area, total area and & cortical bone, bw and % cortical area, bw and % cortical bone, cortical area and % cortical area, and cortical area and % cortical bone. The results have implications for the role of exercise in delaying the onset of senile osteoporosis. As demonstrated, a lifetime of physical activity decreases cortical porosity in old age, thus increasing bone mass. Hence, the risk of osteoporotic fractures may be diminished by activity carried out throughout the lifetime.

209. GOLDEN, J.E. Responses to graded exercise testing in normal children and adolescents with high and low left ventricular mass. PhD in Exercise Science, 1990. (D.H. Nielsen, W.R. Clarke)

Increased left ventricular mass (LVM) has been linked with risk of hypertension in adults, but little research has been performed in children and adolescents. This study examined exercise efficiency, cardiorespiratory fitness, and cardiovascular performance during submax and peak exercise in 239 Ss selected on the basis of LVM. The Ss were equally distributed across age (7-17 yrs), sex, and LVM gp. The exercise test, performed on a cycle ergometer, consisted of 3 submax steady-state stages followed by 30-sec ramps to the S's tolerance to obtain submax and peak values. Physiological variables for submax exercise included oxygen consumption (VO_2, ml/min), heart rate (HR), systolic blood pressure (SBP), rate pressure product (RPP), and O_2pulse versus physical workload (watts) and HR, SBP, and RPP versus physiological workload (VO_2, in ml·O_2/LBM·min). Peak exercise variables included physical work capacity (PWC, highest workload mantained for 30 sec) and peak VO_2 (L/min), HR, SBP, RPP, and O_2pulse during that 30 sec. Normal submax and peak mean exercise responses were seen for all LVM gps and for both sexes. Unadjusted mean peak VO_2, peak HR, and peak SBP were 40.5 ml·O_2/kg·min, 195 bpm, and 181 mmHg, respectively. Lean body mass was the most frequently used

covariate adjustment. The conclusions are: 1) Physical characteristics must be stat controlled when comparing submax and peak exercise responses between gps and sexes. 2) Left ventricular mass is not associated with exercise efficiency or cardiovascular fitness. 3) The covariate adjusted mean diff between the high and low left ventricular mass gps for children and adolescents, ages 7-17, for SBP and RPP responses were not large. 4) There is an association between LVM and the ability to generate high unadjusted peak SBP (≥230 mmHg) during dynamic exercise in children and adolescents.

210. LIU, Q. The relationship between body roll and handpath during the pull phase in freestyle swimming. MA in Exercise Science, 1990. (J. Hay, J.G. Andrews)

The purpose of this study was to determine the influence of body roll and motion of the arm relative to the trunk on the path followed by the hand during the pull phase in freestyle swimming. 10 M swimmers from a univ swimming team were used as Ss. Each S swam 3 20 m-long trials at workout pace. 2 periscope video systems were used to record each S's performance in side view and front view. A balsa fin was mounted on the swimmer's back to permit body roll angle versus time histories to be oftained. The 2 video tapes were anal using a peak 2D motion measurement system. . The body roll angle vs time histories were found directly and the actual handpath was found by projection angle reconstruction. A 3D mathematical model was developed to determine the handpath that would have been recorded by each S if there had been no medial-lateral motion of his hand relative to his body. The results indicated that the medial-lateral motions evident in the actual handpaths were due approximately equally to body roll and upper limb relative motion. From the swimming technical point of view, we should give more attention to body roll. The Ss accelerated the fingertip medially during the first 30% of the pull phase, and laterally between 60% and 80% of the pull phase. The mean value of the maximum body roll angle for the 10 Ss was 61°. The greatest angular speed of body roll was recorded during the beginning and end of the pull phase, and the least near the middle of the pull phase.

211. LOUGH, L.K. The effects of fixed and hinged ankle foot orthoses on gait myoelectric activity and standing joint alignment in children with cerebral palsy. PhD in Exercise Science, 1990. (G.L. Soderberg)

This investigation determined the effect of fixed ankle foot orthoses (AFOs), hinged AFOs, and no orthotic support on standing foot pronation, sagittal plane knee and ankle kinematics, and activity of 4 lower extremity muscles during gait. 15 children with mild or moderate spastic diplegic cerebral palsy participated. All but 1 had worn AFOs previously. Only the RT lower extremity was studied. Dorsoplantar weightbearing radiographs were taken under the 3 treatment conditions and angles indexing valgus and pronation were meas. For

the gait tests, multiple trials were completed. Velocity was determined over the central 6 M segment of an 8 M walkway. Videotapes were subjected to digitization to yield sagittal plane knee and ankle joint angles at midstance from the gait cycle closest to the center of the walkway for each trial. Surface electromyographic (EMG) recordings were obtained from vastus lateralis, medial hamstrings, anterior tibialis, and lateral gastrocnemius muscles with referencing to the gait cycle via a footswitch. Anal of EMG data occurred using an interactive computer prog that produced values for each 5% of the normalized gait cycle. ANOVA procedures showed: (1) improved midfoot alignment with fixed AFOs compared to shoes, (2) greater midstance ankle dorsiflexion and faster walking velocity with hinged AFOs compared to shoes, and (3) nonstat sig changes in amplitudes and duration of electromyographic activity across the 3 treatments. Sufficient changes in variables meas established that the type of orthosis used has implications for patient management.

212. MEYER, J.C. Perceptions of agencies that market collegiate emblematic merchandise toward selected factors related to royalty income. PhD in Physical Education, 1992. (G.F. Hansen)

The primary purposes were to compare the perceptions of (1) coll trademark licensing directors with marketing directors of manufacturers which produce emblematic merchandise; (2) directors of independent with directors of agent administered licensing prog; and 3) directors of licensing prog that generate under $50,000 annual royalty income with directors of prog that generate over $500,000 annual royalty income toward selected factors believed to influence increases in royalty income. The secondary purpose was to determine the relative importance of various factors influencing increases in royalty income as perceived by coll trademark licensing directors and manufacturers of coll emblematic merchandise. The Perceptions of Agencies That Market Coll Emblematic Merchandise Toward Selected Factors Relating to Royalty Income Questionnaire was constructed for collecting perceptions. The questionnaire contained 6 parts; Parts I-IV collected perceptions from respondents toward selected factors believed to be related to increases in royalty income. Respondents indicated, on a 5-point scale, their level of agreement/disagreement with each of the 59 items. Part V collected institutional data from licensing directors, and Part VI collected manufacturers' data from marketing directors. Of the 246 questionnaires distributed in September, 1991, 124 (63.3%) licensing directors and 26 (52.0%) marketing directors of manufacturers returned properly completed questionnaires. The .05 level of sig was used for determining stat sig. Major findings were: (1) Among comparisons made between the 3 gps of respondents, only 25 of the 213 comparisons were stat sig. (2) Respondents agreed that numerous factors are related to increases in royalty income. The 3 major factors were: acd and athletics successes of institutions, television exposure, and logo use and flexibility of logo use. These findings were consistent with current literature. (3) Respondents disagreed with only 13 of the

59 statements (22.0 %) in the questionnaire. (4) Administrative structure of licensing prog was not perceived as a major factor influencing increases in royalty revenue.

213. MILLER, J.A., JR. Optimization of the valgus intertrochanteric osteotomy. PhD in Exercise Science, 1990. (J. Andrews, R.A. Brand)

The purposes of this investigation were (1) to define the looseness of the hip in a clinically relevant way, (2) to develop an algorithm that calculates the looseness of the hip over the range of hip configurations encountered during normal activities of daily living, and (3) to identify the intertrochanteric osteotomy in a given case of osteoarthrosis that minimizes the looseness of the hip. 3 potentially useful looseness indices were defined—the characteristic point locus, the joint space, and the contact region. Logistic regression was used to analyze selected data for 38 Ss who received valgus osteotomies. The final logistic regression equation for each of 3 definitions of osteotomy outcome (success/failure) was used to predict the probability of success associated with a specific osteotomy. The osteotomy with the largest probability of success identified the predicted optimal osteotomy for each outcome For each final logistic regression equation, the degree of fit was low (R=0.270; R=0.303; R=0.354), while the number of correctly predicted outcomes was moderate (78.9%; 68.4%: 78.9%). Considerable agreement (71.1%) was found between the clinical indication of a valgus operation and the prediction of a valgus optimal osteotomy for the logistic regression equation associated with Outcome 1: Pain.

214. MORECRAFT, R.J. The cortical and subcortical efferent and afferent connections of a proposed cingulate motor cortex and its topographical relationship to the primary and supplementary motor cortices of the rhesus monkey. PhD in Exercise Science, 1989. (J.A. Maynard, G.W. Van Hoesen)

This thesis examined the location, somatotopical organization, and connections of a possible cingulate motor area in the cerebral cortex of the rhesus monkey. First, the topography of afferent and efferent connections between the cingulate cortex and the face, forelimb, and hindlimb representations of M1 and M2 were studied. The results indicate that connections between the various representations and areas 24c and 23c of the cingulate are organized topographically. In area 24c, cortex connectedwith the face representations were located rostrally, hindlimb caudally, and forelimb between, suggesting that the anterior cingulate cortex contains a somatotopically-organized motor area. In area 23c, cortex connected with the forelimb representations was located rostrally and hindlimb caudally. The face representation of M1 and M2 was not connected with area 23c. These results do not support the hypothesis that area 23c contains a somatotopically-organized motor area. Second, the afferent and efferent cortical and subcortical connections of areas 24c and 23c were studied.

Several common cortical areas and subcortical nuclei were connected with both areas 24c and 23c; however, major diff were found which underscore the structural diversity among these cortices. Cortically, areas 13, 25, 6VB, 38, 22, and 28 were only connected to area 24c while areas 1, 2, 5, POa, and 8 were only connected with area 23c. Subcortically, only the accessory basal and the cortical amygdaloid nuclei, AD, VA and LD thalamic nuclei, dorsal medial hypothalamic nuclei, and red nucleus were connected with area 24c whereas only AV, VLc, LP, and Pul thalamic nuclei were connected to area 23c. Widespread limbic, prefrontal, and entorhinal input and localized cortical output suggest that area 24c is a highly-specialized motor area that is a direct link between the limbic and motor systems. From the viewpoint of cortical and subcortical connections, it is hypothesized that the cingulate motor area is directly involved in somatic and autonomic motor activity, emotional expression, behavior, attentional direction, and motor memory. Extensive connections with cortical and subcortical sensory associated targets suggest that area 23c is more related to sensory mechanisms than is area 24c.

215. OTTEN, O.G. A study of attitudes toward high school academics possessed by selected football players enrolled at Big Ten Conference universities after the passage of NCAA bylaw 14.3.1. PhD in Physical Education, 1991. (G. Hansen)

The purpose of this study was to determine whether a pattern of desirable attitudes toward HS acd existed among Big Ten Conference football players who graduated from HS at various stages of the enforcement of Proposition 48. The 247 respondents to the High School Academic Attitudes Questionnaire were varsity football players at 4 Big Ten Conference universities. Data collected from each respondent included: biographical data, coll entrance examination information, HS acd attitudes information, and external influences information. Data were anal using a one-way ANOVA and Kendall's coefficient of concordance. Any sig diff discovered at the .05 level were further analyzed using the Scheffé post hoc multiple comparison test. No pattern of increasingly more desirable attitudes about study habits, concern for grades, behavior patterns, and attendance patterns in HS was found among the respondents. Respondents who graduated from HS more recently possessed a greater desire to earn a coll degree than those who graduated in the early stages of Prop 48 enforcement. The 3 most positive influences on respondents' development of desirable attitudes toward HS acd were parents, HS athletic coaches, and HS teachers. The 3 least positive influences were Prop 48, HS principals, and state graduation requirements.

216. RYAN, A.J. The toxic effects of bacterial lipopolysaccharide in previously heat-stressed rats. PhD in Physical Education, 1992. (C.V. Gisolfi)

Recent evidence indicates that endotoxemia can contribute to heatstroke

mortality in humans and animals who survive the initial detrimental effects of heat stress. Project I determined (a) if prior (0 hr) heat stress could sensitize rats to bacterial lipopolysaccharide (LPS), and (b) if tissue damage in rats, produced by either heat stress and/or LPS, localizes the third component of complement (C3) to damaged areas. Project II determined (a) if prior (24 hr) heat stress could render rats resistant to LPS, and (b) if this acquired resistance is associated with either elevated levels of 70,000-Da stress protein (hsp70) and manganous superoxide dismutase (MnSOD) in selected tissues and/or endotoxemia during heat stress. 4 gps of rats were examined: (a) saline, (b) LPS, (c) heat stressed + saline, and (d) heat stressed + LPS. Saline or LPS was given intravenously either immediately after (Project I) exposure to heat (Ta=47-50°C,rh=30%) or 24 hr after (Project II) heat exposure for heat stressed rats, and at the same time of day for nonheated rats. In both Projects survival was monitored for 48 hr. Exposure to heat stress (T_C=42.9°C) did not sig (P>0.05) sensitize rats to the lethal activity of 5 mg LPS/kg BW (Project I). Kidney samples showed extensive C3 staining at 6 hr after heat stress and heat stress + LPS. Admin of 20 mg/kg LPS to nonheated rats produced 71% (5/7) lethality (Project II). In contrast, all (7/7) rats subjected to a single, nonlethal heat stress event 24 hr prior to LPS treatment survived (P<0.05). Protein immunoblots showed elevated hsp70 in liver, kidney, and small intestine at 12, 24, and 36 hr after heat stress, and slight elevation of lung MnSOD at 12 and 24 hr after heat stress. Endotoxemia was not detected in heat stressed rats. Thus, these findings show that prior (24 hr) heat stress can protect rats from the lethal activity of LPS, and are consistent with the hypothesis that hsp70 and MnSOD can provide protection against the toxic effects of LPS.

217. VANDER LINDEN, D.W. Effect of muscle length on motor unit firing behavior in human tibialis anterior muscle. PhD in Physical Education, 1989. (C.G. Kukulka)

This study hypothesized that motor unit firing rate would be influenced by muscle length during isometric contractions. Motor unit firing rate of the tibialis anterior muscle was studied under increasing and decreasing isometric contractions, as well as during steady isometric contractions at 3 muscle lengths. 20 young, normal M subjects were used. During steady contractions, motor unit firing rate increased more rapidly per N-m of dorsiflexion torque in shortened muscle than in neutral length or lengthened muscle (p<.05). When dorsiflexion torque was normalized to max at each muscle length, no diff were found in motor unit firing rate among muscle lengths. During isometric contractions that increased at a rate of 5% MVC/sec, motor unit firing rate was sig greater in shortened muscle than in lengthened muscle (p<.05). Very brief initial interspike intervals occurred more frequently in shortened muscle than in either neutral length or lengthened muscle. This study suggested that muscle length does influence motor unit firing rate during steady contractions against loads that are not normalized to max torque.

218. WEISSBLUETH, E. The effect of altering speed of backward movement of the trunk on anticipatory postural adjustments. MA in Exercise Science, 1991. (K.J. Cole)

This study investigated the assumption that anticipatory postural adjustments (APA) seen in the gastrocnemius muscle prior to a backward mvmt of the trunk in trained individuals is due to a high speed of mvmt rather than to the level of training. Ss were 7 elite gymnasts. They were required to bend their trunk backward in submax and max speeds. The gastrocnemius and tibialis anterior muscles were activated earlier than the erector spinae muscle in trained individuals who performed the task at a max speed. In the same Ss performing the task in a submax speed, the onset of the gastrocnemius and tibialis anterior muscle burst appeared to follow that of the erector spinae. This suggested that the muscle pattern exhibited by the Ss in the max speed condition, which has previously been attributed to training level, occurred in part due to the diff in mvmt speed between trained and untrained Ss. It was also indicated that the activation of the hamstrings muscle gp was temporally similar to the activation of the erector apinae in both the submax and max speed conditions. This was consistent with the role of the hamstrings as a prime mover for backward mvmts of the trunk. Trained individuals moving the trunk backward in a max speed also moved simultaneously their hip and knee in the forward direction. In contrast, when trained individuals were moving the trunk backward in submax speed condition mvmts at the knee and ankle followed the mvmt of the hip. This indicated that the distally anticipated pattern is a primary consequence of mvmt speed and may be only secondarily associated with training level. Another finding was the ability of some Ss in the submax speed condition to use a diff order of initiating mvmts at the hip, knee, and ankle joints than other Ss to execute the motor task.

219. YUE, G.H. The effect of imagery maximal muscle contraction training on the voluntary neural drive to muscle. PhD in Physical Education, 1990. (K.J. Cole)

Initial strength gains in a strength training program are not due to muscle hypertrophy. This finding suggests that neural factors alone may be able to produce strength increases. However, it is unclear whether muscle contraction training is required for force increases. This study was designed to test the hypothesis that imagery training of maximal muscle contractions (IMMC training) can increase voluntary neural drive to the trained muscle and produce strength increases. 27 young adult Ss were assigned to 3 gps. The imagery gp was trained with the IMMC technique and the contraction gp was trained with max isometric muscle contractions for 4 weeks, 5 sessions per wk. The third gp served as control Ss. Max voluntary strength (MVC), EMG and electrically evoked reflex EMG responses were meas before and after the training program. After training, the MVC of both the trained and contralateral untrained muscles

increased sig (22% and 10% for the imagery gp, and 30% and 14% for the contraction gp). These strength increases between the gps were not sig diff. The increases in EMG were not sig correlated with the gains in force. No sig reflex potentiation was found. Training with imagery techniques may yield neural events that are similar to those which yield increased strength prior to muscle hypertrophy. Therefore, the early force gains in a strength training program may not require muscle activation.

UNIVERSITY OF MARYLAND
COLLEGE PARK, MARYLAND

220. ERO, J.D.M. Muscle stretch amplitude and load associated with vertical jump performance, muscle elastic/contractile properties, and myoelectrical activity. PhD, 1990. (D.L. Santa Maria)

11 M Ss participated to examine the influence of skeletal muscle stretch amplitude and load on vertical jump performance, muscle's elastic/contractile properties, and myoelectrical activity. Ave integrated electromyograms (IEMG), knee joint angular displacement, vertical ground reaction force, and vertical jump height were meas while Ss executed maxl voluntary static jumps (SJ), counter-movement jumps (CMJ), and drop jumps (DJ) on a Kistler force platform. Ss performed DJs from heights of 40 (DJ40) and 55 cm (DJ55). All jumps were performed with a small and large knee angle amplitude. Average IEMG activity was recorded from the vastus lateralis, gluteus maximus, and gastrocnemius muscles of the right leg. Knee angular displacement was recorded using a Penny-Giles electrogoniometer fixed to the lateral side of the left knee joint. Mechanical eccentric and concentric parameters (e.g., force, velocity) derived from CMJs and DJs were compared to jumps without an active stretch (SJs). Information dealing with the behavior of the muscle's elastic/contractile properties during the various jump tests was obtained by examining the ave IEMG Force (I/F) ratios corresponding to the concentric contraction phases. For vertical jumps involving active stretch (CMJ, DJ40, and DJ55), the jump height and ave concentric force were influenced more by stretch amplitude (knee angle) than by stretch load (drop heights). The greater the stretch amplitude, the higher the jump height ($p<0.01$) but the smaller the resulting force ($p<0.01$). For ave concentric velocity and power, the greater the stretch load, the greater the resulting velocity and power (CMJ vs DJs, $p<0.05$); the greater the stretch amplitude, the greater the velocity (DJs only, $p<0,05$) but the smaller the resulting power (CMJ and DJs, $p<0.01$). Only for the gastrocnemius, the greater the stretch load, the lower the resulting I/F ratio (CMJ vs DJ55, $p<0.05$) regardless of stretch amplitude. It was concluded that the gastrocnemius shows a greater utilization of elastic/contractile potentiation compared to the vastus and gluteus muscles. Regardless of stretch amplitude, load, and muscle, the average IEMG activity corresponding to the concentric

contraction was greater than that of the eccentric contraction ($p<0.05$). It was concluded that long-latency reflexes are involved in active stretch jumping in which the eccentric contraction is at least 150 milliseconds long.

221. HAMON, J. Social evaluation anxiety and audience presence: Effects on state anxiety and performance. MA, 1991. (B.D. Hatfield)

The purpose was to investigate social facilitation effects upon state anxiety and motor performance while considering personality. According to interaction theory an individual's behavior is best predicted by considering the dispositional tendencies of the person as well as the characteristics of the situation in which the person exists. The Stimulus-Response Inventory of General Trait Anxiousness was used to meas trait social evaluation anxiety. F Ss (n=56) performed simple and complex motor tasks either in the presence of a passive evaluative audience or while alone. Due to the presence of an evaluative audience it was hypothesized that Ss high in trait social evaluation anxiety would show increased levels of state anxiety compared to individuals low in trait social evaluation anxiety. Accordingly, it was hypothesized that there would be performance diff between individuals high and low in trait social evaluation anxiety while performing in the audience condition. A 2x2x2 (trait anxiety x audience condition x task complexity) ANOVA was applied to state anxiety scores as meas by a visual analogue scale. The arousal data revealed a sig main effect for gp but no sig main effect for condition or gp x condition interaction. High trait-anxious Ss indicated higher state arousal compared to low trait-anxious Ss across conditions. Contrary to expectation, both gps indicated decreased arousal in the audience condition compared to the alone condition, though nonsig. ANOVA on task performance data revealed no sig main effect for gp or condition. R's between VAS scores and performance scores were low and nonsig. The findings failed to provide evidence for social facilitation effects as all Ss indicated lower arousal levels in the audience condition. It was suggested that arousal varied in accordance with individual perceptions of the audience such that the audience served to reduce rather than increase state anxiety.

222. WAGNER, D.L. The effects of academic rule changes on Region 20 men's basketball programs. MA. (J. Wrenn)

In 1984, 1986, and 1988 the National Junior College Athletic Association (NJCAA) imposed changes in academic eligibility requirements on stdnts who wished to participate in intercoll athletics. This study examined the effects of those requirements on the community/junior coll basketball prog in NJCAA Region 20 during the 1988-1989 season. 25 community/junior coll athletic prog in MD, PA, and OH were evaluated. These institutions represented 293 stdnt-athletes. The athletic director and head basketball coach from each institution responded to an eligibility survey questionnaire to determine the

status of the stdnt-athletes in their basketball prog. The results were combined to evaluate prog opportunity trends and the current eligibility status among community/junior coll and states, and also scholarship vs nonscholarship prog. A number of the institutions in Region 20 experienced a decreased number of participants in their basketball prog during the 1989 spring semester due to academically ineligible stdnt-athletes. MD representatives and nonscholarship prog in Region 20 tended to have a higher percentage of academically ineligible stdnt-athletes. Responses from ADs and head basketball coaches from nonscholarship institutions stated this was due to current NJCAA eligibility guidelines that do not conform to the community/junior coll athletic structure.

UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI

223. BASECKE, M. The relationships among exercise blood lactate responses, muscle blood flow, and oxidative adaptation to endurance training in the rat. (B.R. Londeree)

The relationships among muscle blood flows (MBFs), arterial blood lactate (HLa), and citrate synthase activity (CS) were studied in untrained and endurance trained (10-13 wks of treadmill exercise at 30 m/min, 60 min/day, 5 day/wk) rats in an effort to evaluate hypothetical causes for blood lactate accumulation during exercise. Control meas included sampling for glycogen depletion (GD) and meas of plasma epinephrine (E) and norepinephrine (NE) concentrations. Each rat exercised at a single intensity among a range from 15-53 m/min designed to achieve 3 classification strata as follows: gp 1 (GP 1)= absolute intensity of 15 m/min; GP 2=net (exercise - preexercise) HLa of <1.0 mM; and GP 3=net HLa of 1.0-1.99 mM. MBFs were determined by means of a radiolabeled microsphere technique for 16 hindlimb functional extensor muscles classified according to estimated SO, FOG, and FG fiber pop into the following 4 classes: SO-FOG, FOG-FG, FG-FOG, and FG. Data appeared inconclusive with respect to confounding influences of E and training effects upon MBFs. However, data for this range of low to moderate intensities suggested the following. (1) Trained rats exhibited suppressed blood lactate (ability to perform at higher speeds than untrained rats for a given lactate response), despite limited indication from CS activity of oxidative enzymatic adaptation. (2) FG muscle from trained rats exhibited GD and appeared to contribute to HLa accumulation. (3) GD and MBFs were not interchangeable indicators of fiber activity within the VL_W of trained rats. (4) MBFs generally were higher, regardless of muscle class, for higher levels of blood lactate response. (5) Muscle recruitment patterns inferred from MBFs for mixed (FOG-FG and FG-FOG) muscles, combined with considerations for their FG fiber density, supported a generalization that these muscles likely contributed substantially to blood lactate response.

224. MORRIS, D.M. The effect of bicycle crank arm length on oxygen consumption at a constant workload and cadence. (B.R. Londeree)

The purpose was to determine the effects of various crank lengths on O_2 consumption for trained cyclists exercising at a constant workload and cadence. Secondary purposes were, if individual optimal crank lengths existed, to determine if they could be predicted based on an individual's anthropometrical or isokinetic knee extension strengths. 6 trained cyclists completed 4 105-min exp protocols riding at a workload of approx 68% of VO_{2max} and a cadence of 90 rpm using 3 crank lengths of 165, 170, and 175 mm assigned in random order. 2 days following the third exp protocol, the third crank length was retested to establish reliability. During each protocol cadence, O_2 consumption and distance travelled were determined. O_2 consumption and distance travelled data were combined to give an O_2 consumption/mile/min value. The values of each S's 3 protocols were placed in either a high, medium, or low efficiency category. Sig diff in O_2 consumption/mile/min were found among the 3 protocols. No sig r's were found between each S's most efficient crank length and any of the anthropometrical or isokinetic strength variables. The results suggest that each S has an optimal crank length which produces the lowest O_2 consumption per unit of work. However, it does not appear that the optimal crank length can be predicted by either leg lengths or various leg isokinetic strengths.

225. MURPHY, D. Application of the transtheoretical model to exercise adherence. 1992. (J.A. Roberts)

In an attempt to understand and thereby facilitate exercise adherence, researchers proposed the existence of stages in the adoption of the exercise habit and suggested that internal and external variables have differential effects across these states. Prochaska's Transtheoretical Model of Behavior Change has been used to empirically demonstrate this concept in individuals making a variety of behavior changes. Exercise adherence researchers pursued investigation of the Transtheoretical Model's applicability to exercise behavior by admin questionnaires assessing Ss' current use of exercise-related thoughts and behaviors. A similar stage/process relationship was found to exist as was exhibited in other behavior change situations. The purpose of this study was to further investigate and substantiate the applicability of the Transtheoretical Model to exercise behavior by extending study of the concept to other more diverse pop. 2 gps were admin questionnaires; the working gp consisted of employed individuals between the ages of 19 and 64, and the older gp consisted of individuals 65 yrs and over. In the first phase, factor anal was employed to identify change processes used by Ss, followed by ANOVA to ascertain differential use of these processes across the stages. Factor anal demonstrated the existence of 6

psychological processes used by the working gp and 5 by the older gp. The ANOVA was sig indicating differential use of these processes across the 5 stages of change. Each gp also displayed unique characteristics in regard to process use patterns. The second phase involved 4 comparisons designed to provide external validation for the independent variable of the first phase. Each comparison produced sig results, thus substantiating the validity of the independent variable. This study supports the applicability of the Transtheoretical Model to exercise behavior.

UNIVERSITY OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO

226. HUNT, L.E. Effects of perceived quality of life between coronary artery bypass graft and heart transplantation patients with regard to cardiac rehabilitation. PhD in Health, Physical Education, and Recreation, 1991.

The purpose was to determine if there was any effect on perceived quality of life (QOL) between 2 cardiac interventions. The interventions were heart transplantation surgery (HTS) and coronary artery bypass graft surgery (CABGS). QOL was identified through use of the Sickness Impact Profile (SIP), consisting of a physical dimension score, a psychosocial dimension core, and a total score. A second purpose was to determine if there was any effect on perceived QOL between involvement in cardiac rehabilitation (CR) and no involvement in CR. The Ss were 31 HTS patients and 38 CABGS patients, all of whom had undergone surgery at Presbyterian Hospital in Albuquerque, NM. All Ss were at least 6 months post surgery. Results of the ANOVA indicated there was no effect on perceived QOL between those Ss who had undergone HTS and those who had undergone CABGS on the 3 SIP meas. However, when involvement in CR was examined, those Ss who were involved in CR had a better perceived QOL (as meas by the total SIP meas) than those Ss who were not involved in CR. More specifically, those involved in CR had less psychosocial dysfunction, while CR had no affect on physical dysfunction. Within the limits of this study, it was concluded that CR involvement improved perceived QOL in patients who had undergone HTS and CABGS. Psychosocial dysfunction also was reduced when these patients were involved in CR. Findings support the positive benefits of CR on patients' perceptions of QOL, primarily total QOL and the psychosocial meas. This information may be useful when reimbursement for CR is disallowed on the basis of lack of defined benefits. In addition, this study suggests the importance of patients' perceptions concerning their rehabilitation. These perceptions may affect the extent of rehabilitation and help identify what the patient expects from the rehabilitation process. This study also may open new avenues in cardiac rehabilitation for the health promotion professional.

227. JOHNSTON, B.D. A study of the relationship of "withitness" to ALT-PE and monitoring in middle school physical education. PhD in Curriculum and Instruction, 1991, 142 pp. (J. Gustafson)

The problem was to investigate the relationship of timing, targeting, and responding ("withitness") to student reaction during a desist (action to stop a misbehavior). Other relationships investigated were withitness to monitoring and tchr exp, class size, and type of activity to withitness. Ss were 31 middle school PE tchrs in Albuquerque, NM. The 1982 Revision Coding System was used to record ALT-PE while class was in session. The withitness score was meas by watching the videotape and evaluating each desist for appropriate timing, targeting, and responding. The monitoring score was also drawn from the videotape and was a combination of the sector change rate per min and the % of time facing the majority of the class. The data were anal through the use of ANOVAs and a multiple regression. The study revealed that stdnt response (how a stdnt responds to a desist) was sig related to timing, targeting, and responding (withitness). The only other sig relationship was between the type of activity and withitness which indicated tchrs scored sig higher withitness scores in team sport activities.

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL
CHAPEL HILL, NORTH CAROLINA

228. BAINES, K.C. Fitness levels of children in North Carolina. MA in Physical Education, Exercise, and Sport Science, 1991. (R.G. McMurray)

This study examined the relationship of aerobic fitness of children in NC to other North American and European children. Aerobic fitness was estimated by predicting VO_{2max}. The physiological parameter most related to VO_{2max} (l/min) in children was determined. The VO_{2max} was predicted for 762 NC ele school children (age 8-10) from a submax PWC_{170} cycle ergometer test. Ht, wt, tricep and subscapular skinfolds, body fat percentage, and lean body mass were also recorded. The children in NC were less fit (M=1.55 l/min; F=1.33 l/min) than the children in previous North American studies of VO_{2max} (M=1.74 l/min; F=1.46 1min), and were very similar in fitness levels to children in a large European study. For F, LBM was a strong predictor of VO_{2max} in l/min, whereas in M, ht and LBM were strong predictors. The results suggest that NC children are less fit than in earlier studies of children in North America, that LBM is a strong predictor of VO_{2max} in l/min in children, and that more studies are needed in North America to study VO_{2max} in children.

229. BRADLEY, C.B. Relationships between predicted VO_{2max} of children in North Carolina and their parent's attitudes toward exercise. MA in Physical Education, 1991. (R.G. McMurray)

The predicted VO_{2max} of 1253 third and fourth graders was estimated by the PWC_{170} adapted for children. These results were compared to their parents' attitudes toward exercise as obtained by the Exercise Benefits/Barriers Scale (EBBS; Sechrist, Walker, & Pender, 1987) to determine the effects of parental attitudes toward exercise on children's fitness levels. The VO_{2max} of the M was 44.4±9.7 ml/kg/min while that of the F was sig lower at 39.2±8.6 ml/kg/min ($p<0.0001$). VO_{2max} scores were also sig diff between rural (40.6 ml/kg/min) and urban (43.1 ml/kg/min) children ($p<0.001$). Simple r's between the EBBS scores and the child's VO_{2max} indicated no sig ($r<0.07$; $p>0.05$). Further stat anal dividing the EBBS scores into quartiles revealed no sig diff between the VO_{2max} of children of parents with high EBBS scores and that of children of parents with low EBBS scores ($p>0.05$). The results of this statewide study indicate that parental attitudes toward exercise have little influence on a child's VO_{2max}.

230. BROWNLEY, K.A. The effects of music on psychophysiological stress responses to graded exercise. MA in Physical Education, 1991. R.G. McMurray)

The influence of music on physiological and affective exercise responses was studied in 8 trained (T) and 8 untrained (UT) runners under 3 music conditions (no: NM; sedative: SM; and fast: FM) and at 3 levels of intensity: 40%, 60%, and 80% (i.e., low, moderate, and high). Statistical anal revealed increased respiratory frequency (f_R) during the FM as compared to the NM and SM conditions. Corresponding increases in ventilation were observed in UT but not T Ss. Stride frequency (f_S was higher in the T gp; yet, in the UT gp f_s was more synchronous relative to FM tempo. "Feeling" (affect) was higher in the UT gp at low intensity; yet declined more severely from moderate to high intensity during SM. Data from a fourth stage to voluntary exhaustion demonstrated sig gp diff in "feeling," f_s, and skin temp. These results suggest listening to FM may be beneficial for UT runners but counterproductive for T runners.

231. BRYAN, C.H., JR. An analysis of selected attendance factors in the World League of American Football. MA in Physical Education, Exercise, and Sports Science, 1992. (J.E. Billing)

Data from the inaugural yr of the World League of American Football was examined in relation to variables hypothesized to affect attendance. Findings verified that teams with more victories consistently recorded higher attendance. Rain games resulted in a mean loss in attendance of 11,076. Promotional premiums increased the mean attendance by 7,241. Day of game occurrence

did not influence attendance; however, night games had a mean attendance of 9,852 more fans than afternoon games. The mean increase in attendance following a home victory was 4,667, while the mean loss in attendance following a home defeat was 6,889. Losses on the road did not appear to influence subsequent home attendance. Television coverage and stadium capacity were not related to changes in attendance. Findings demonstrate the importance of winning home games, defeating opponents by a large margin, offering premiums, and scheduling night games.

232. BULLARD, J.M. The growth hormone response to exercise at different times of the day. MA in Physical Education, Exercise, and Sport Science, 1991. (R.G. McMurray)

The growth hormone response to exercise at diff times of the day was studied in14 M. Test times were randomly assigned as 0600, 1200, 1800, and 2400 hrs with each trial performed on a diff day. Trials consisted of 30 min of cycle ergometer exercise at a workload that elicited 80% of VO_{2max}. Resting and post-exercise plasma concentrations of hGH were obtained at each trial. Resting hGH was not sig diff between the 4 trials. Exercise resulted in a sig increase in hGH over rest in all trials. The peak levels during the 1200 and 1800 trials were sig greater than the 0600 and 2400 trials ($p<0.05$). The findings suggest exercise induced augmentation of hGH levels will vary depending on the time of day the exercise is performed.

233. COBHAM, H.W. The effects of cardiac rehabilitation on coronary heart disease risk factors in post myocardial infarction patients. MA in Exercise Science, 1991. (B.E. Ainsworth)

The purpose was to determine the effects of 6 months of cardiac rehabilitation on CHD risk factors and to determine the concurrent changes in cardiovascular fitness and CHD risk factors in post MI patients. Ss included 53 MI patients (43 M and10 F) enrolled in the Orange Cardiovascular Foundation and Wake Forest Univ cardiac rehab prog from 1979 to 1991. Comparison of the gp mean after 3 and 6 months of cardiac rehab was performed with repeated meas ANOVA. Associations between changes in METs and CHD risk factors were tested with partial r's adjusting for race, gender, and 6 months change in bw. Results showed a decrease in % bf at 6 months (-2%, $p < .05$), an increase in HDL-C at 6 months (+3 mg/dl), and an increase in MET capacity at 3 months (+1.3 METs, $p<.05$) and 6 months (1.9 METS, $p<.05$). Sig associations were observed for the 3-month change scores between METs and angina ($r= -.038$, $p<.05$) and the 6-month change scores between METs and ST depression ($r= -.034$, $p<.05$). The inverse association between the change in MET capacity and the angina scores and ST segment depression suggests that cardiac rehab is effective in improving exercise tolerance in post MI patients.

234. CORNELIUS, A.E. Sources of stress in athletes: A validation of the Precompetitive Stress Inventory. MA in Physical Education, 1991. (J.M. Silva)

The purpose was to further examine and refine the factor structure of the Precompetitive Stress Inventory (PSI) through the use of confirmatory factor anal. The PSI is a self-report instrument that meas sources of stress in the athletic environment during the precompetitive period and the effect of these stressors on performance. The test-retest reliability and concurrent validity of the PSI were also examined, and supplemental examinations were conducted to assess the ability of the PSI to detect diff between Ss by type of sport, gender, and scholarship status. The Ss were 153 varsity coll athletes who were admin the PSI on 2 separate occasions. After several modifications, a final model of the PSI consisting of 36 items and 9 factors was developed. This model had a X_2 value of 888.8099, df=558 ($p<.001$) and goodness of fit indices of P=.8044 and Δ=.6500. The test-retest reliabilities were 0.7635 for the frequency of concern (FC) scale and 0.6323 for the effect on performance (EP) scale. Scores on the SCAT showed a moderate r with the FC scale (.3389, $p<.05$) and a nonsig r with the combined FC and EP scales. Separate ANOVAs using a total PSI score did not demonstrate sig diff between Ss from open-skill and closed-skill sports, between Ss from team and individual sports, or for gender or scholarship status. Discriminant function anal using the 9 factors of the PSI as predictors did show sig diff between these gps. The final model of the PSI shows promise as a valid and reliable instrument for assessing sources of stress in sport and with further psychometric validation of this model the PSI will provide researchers and clinicians with a useful assessment tool for investigating stressors in the precompetitive sport environment.

235. DENNIS, D. The chronology of effects of caffeine during prolonged cycle ergometry. MA in Physical Education, Exercise, and Sport Science, 1991. (R.G. McMurray)

Nine trained M cyclists were studied to determine the chronology of effects of caffeine use during 90 min of cycle ergometry at 75% VO_{2max}. Doses of 5 mg caffeine/kg BW were ingested at 60 min pre-exercise and immediately pre-exercise. During the CAF trials, mean oxygen uptake was 2.5% higher ($p<.05$) and RPE values were sig lower than during the PL trials ($p<.05$). No stat sig diff were found in FFA, glucose, lactate, or respiratory quotients; however, the overall mean values for FFA and respiratory quotients suggest a trend toward greater FFA utilization during the final 30 min of exercise following caffeine ingestion. Thus it seems that caffeine may be most beneficial during exercise of more than 60 min in duration.

236. GEISLER, S.A. Eccentric peak torque and maximal repetition work percentages of the dominant external rotators in college Division I baseball players. MA in Physical Education, Exercise, and Sport Science, 1991. (W.E. Prentice, Jr.)

The purpose was to compare dominant shoulder eccentric external rotation strength in coll baseball players. 9 pitchers and 9 position players volunteered for this study. While performing 2 sets of 3 repetitions, the players' dominant shoulder external rotator strength was tested concentrically and eccentrically at 120°/sec. Peak torque and max repetition work values were recorded. Concentric values were used to convert each S's eccentric peak torque and max repetition work values into eccentric percentages (Ecc%=Ecc/Conx100). The eccentric results ($p \leq .05$) indicated that the pitchers produced sig greater eccentric peak torque (133.22±14.00) and max repetition (154.77±11.96) work percentages than the position players (117.88±16.81) (132±14.17). The greater eccentric force percentages produced by the pitchers may be the result of the adaptive specificity, over time, of the external rotator muscles.

237. GOEBEL, B.M. The effects of supervised cardiac rehabilitation on selected coronary artery disease risk factors following coronary artery bypass graft surgery. MA in Exercise Science, 1991. (B.E. Ainsworth)

The purpose was to determine the effects of cardiac rehabilitation (CR) on selected coronary artery disease (CAD) risk factors in coronary artery bypass graft (CABG) patients. 6 M (mean age=63±7 yrs) and 4 F (mean age=66±6 yrs) self-selected themselves into treatment (T) and comparison (C) gps at 8 wks following surgery. The T gp participated in 12 wks of CR which included information about CAD risk factor reduction, supervised exercise for 3 days a wk, and usual care from their physician. Ss were tested at the beginning (pre) and 12 wks later (post). Meas included: treadmill max MET capacity (METs), total cholesterol (TC), HDL-C, and LDL-C in $mg \cdot dl^{-1}$, TC/HDL-C ratio, 3 mos history of physical activity (TMHPA), and dietary food frequency (D). Anal were performed using ANCOVA, adjusting for age, gender, and pretreatment values. Results showed sig diff ($p<.05$) in posttest scores between the T and C gps for METs, HDL-C, total and household TMHPA. Comparisons between the gps for TC, LDL-C, heavy, moderate, light intensity TMHPA, and D were not stat diff ($p>.05$). These findings suggest that CR, in addition to usual care, is associated with a reduction in selected CAD risk factors compared to usual care treatment alone in CABG patients following surgery.

238. HELGANS, R.M. The role of aerobic fitness and social support in reactivity to psychological stress. MA in Physical Education, 1991. (C.J. Hardy)

This study examined the relationship between social support and aerobic

fitness on reactivity to and recovery from a public speaking task. Ss were 26 (15 F, 11 M) volunteers at the Univ of North Carolina at Chapel Hill. Pretest values for physical activity, social support, aerobic fitness, STAIT, and public speaking efficacy were obtained prior to performing a 5-min public speaking task. HR, BP, a 5 ml blood sample, and STAIS-Anxiety values were obtained at rest, immediately posttest, and after a 5-min recovery. ANOVA and multiple regression models were employed to assess psychological (STAIS), hormonal (ACTH), and cardiovascular (HR, SBP, DBP, MAP) reactivity and recovery. Ss high in social support displayed decreased anxiety reactivity and increased recovery. Ss high in aerobic fitness showed decreased BP reactivity and increased recovery. The interaction of social support and aerobic fitness sig predicted SBP but it is not clear whether they had a facilitative or displacing effect on SBP.

239. KENDRICK, R.J. A comparison of isometric strength test results between low back injured patients and normals. MA in Physical Education, Exercise, and Sport Science, 1991. (F. Pleasants)

The purpose was to compare isometric strength test results between a gp of normals and low back injured patients. The normals were volunteers with no history of low back injury requiring them to miss work. The injured patients had a diagnosis of low back strain which required them to miss 6 or more mos of work. Ss were admin an isometric arm, leg, and torso lift on an Ergometrics Company Analyzer. 3 trials were performed in each position with the ave force, coefficient of variation between trials, and number of acceptable trials being recorded. 2 of the injured patients could not complete the torso lift; their data were thus omitted. ANOVA showed the normals to ave sig more force on each of the 3 lifts ($p<.01$). The normals also obtained sig more acceptable trials on each of the lifts ($p<.05$). The gps obtained similar coefficient of variations between trials.

240. LANTZ, C.D. The effects of social physique anxiety, gender, age, and depression on perceived exercise behavior. MA in Physical Education, Exercise, and Sport Science, 1991. (C.J. Hardy)

The purpose was to determine the relationship between social physique anxiety and exercise behavior as well as to examine the effects of gender, age, and depression as moderators variables. 120 M and 180 F Ss ranging in age from 18 to 60 completed the Social Physique Anxiety Scale (SPAS), Beck Depression Inventory (BDI), and the Minnesota Heart Health Program Leisure Time Physical Activity Questionnaire (MHHP). Within gp correlational anal and hierarchical product term multiple regression anal were used to test for disjunctive and conjunctive effects as well as form and degree effects. The results indicated no sig degree effects; however, for the form effect, a sig negative relationship between exercise behavior and SPA $F(1,298)=19.018$

$p<.0001$, $R^2=6\%$. Further steps in the regression anal indicated that gender and age moderate this relationship in a singular or disjunctive manner, $F(3,296)=12.873$ $p<.0001$, $R^2=14.86\%$, R^2inc $F(3,295)=10.54$, $p<.05$. Interpretation of the disjunctive model indicates that physical activity decreases in older F with higher levels of SPA. It was concluded that SPA negatively influences exercise behavior and that the form of this relationship is moderated by gender and age in a disjunctive manner.

241. LEMLEY, T.R. A comparison of two intermittent external compression devices on pitting ankle edema. MA in Physical Education, Exercise, and Sport Science, 1991. (W.E. Prentice, Jr.)

The purpose was to compare the effectiveness of 2 treatments in reducing pitting ankle edema. One gp was treated with the Jobst Cryo/Temp (JCT); the other gp was treated with the Wright Linear Pump (WLP). A 3rd gp was treated with elevation and acted as a control gp. Water displacement meas were taken before and after one 30-min treatment as an indirect method to calculate the effects on pitting ankle edema. 27 coll aged M and F Ss were evaluated by a grad/staff athletic trainer or by a physician in the Univ of North Carolina Student Health Service. To meet requirements for the study, Ss presented a unilateral ankle sprain with pitting edema that did not require cast immobilization or surgery. Ss were alternately assigned to the 3 treatment gps and were treated at least 24 hrs post injury. A sig repeated meas effect was found ($p<.0001$). This meant that a 30-min treatment using either the WLP, the JCT, or elevation was successful at reducing pitting ankle edema. There were no sig effects found for either treatment condition or interaction. 7 out of 9 Ss in both the WLP and JCT gps experienced a reduction greater than the meas error calculated for the volumetric water displacement tank (7.08 ml), while only 4 out of 9 Ss in the control gp experienced a reduction greater than 7.08 ml. Thus both the WLP and JCT were found to be of greater clinical benefit than elevation alone in reducing pitting ankle edema. The mean reduction values for the WLP and JCT gps were -9.667 ml and -13.556 ml respectively. Therefore this study suggests that the JCT is the treatment of choice for reducing pitting ankle edema.

242. PREMO, M.C. Reproductive endocrine response following anaerobic and aerobic exercise. MA in Physical Education, Exercise, and Sport Science, 1992. (A.C. Hackney)

The purpose was to analyze select regulatory hormonal responses—testosterone (T), luteinizing hormone (LH), prolactin (PRL), and cortisol (Co)—within the hypothalamic-pituitary-gonadal axis in moderately trained M over an 8-hr recovery period following anaerobic (ANA) and aerobic (AER) exercise sessions of equal total work output. Ss (n=9) initially performed a max aerobic capacity (VO_{2max}) test to determine an overall workload for exp exercise

sessions. On subsequent testing days, Ss were randomly assigned to one of the following exp sessions: (a) rest for 60 min (CON), (b) cycle at 60% VO_{2max} for 60 min (AER), or (c) 2-min alternate cycling intervals at 110% and 40% VO_{2max} (ANA). Blood samples were obtained just prior to the exp session, immediately following, and every hr for 8 hrs into the recovery. Stat anal revealed sig increases in PRL and Co only due to exercise. The area under the 8 hr response curve (AUC) was calculated for all hormones. R between the hormonal AUC results revealed a sig interrelationship between T and LH during CON and AER ($p<.05$), but not so for ANA ($p<.05$). These findings suggest the relationship between T and LH, as meas by the AUC, seems to be disrupted by the ANA but not the AER exercise.

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243. CLARK, D. An interpretive inquiry of the professional life histories of selected women dance physical educators. EdD, 199, 266 pp. (S.M. Robinson)

This inquiry focused on a gp of F dance/physical educators for whom mvmt is the epistemological vehicle for a way of knowing. The participants had professional experience within both disciplines of dance and PE, yet in their quest to seek a professional identity, they often transcended the disciplinary boundaries. Choreology (Preston-Dunlop, 1987), which studies the intrinsic structure of the dance medium, was used as a metaphoric framework. The 5 strands of the dance medium which comprise choreology are the mvmt, the movers, the decor, the sound, and the space. In this inquiry, the decor served as a metaphor for understanding historical and social context as the scenic contribution or "backdrop" for the F's emergent issues. The method for interpreting the participant's life histories was the dialectical-hermeneutic (Guba & Lincoln, 1989). This provided the means to understand their multiple realities within a constructivist paradigm. From an interpretation of their life histories, a dialectic emerged between educator/performer and process/product orientations to the disciplines of dance and PE. The paradoxical elements inherent in each perspective were examined. Key issues of hegemony, reification, and commodification emerged from the interviews. The lens of "politics" was utilized to examine and interpret these and other issues. A strong thread of "participatory consciousness" (Heshusius, 1992) emerged as guided their epistemology. The study examined the issues raised by F educators who are constructing professional identities within often rigid disciplinary structures. Their previously unheard voices may be shared by others involved with issues such as curriculum, teacher preparation, arts education, and women's studies.

244. CLIFTON, R.T. Gender differences in the relationships among self-confidence, gender-appropriateness, and value. MS, 1992. (D. Gill)

A meta-anal by Lirgg (1991) pointed out several shortcomings in studies investigating gender diff in self-confidence in sport. One purpose of this study was to answer the call for studies that employ a feminine-typed task, one in which Ss actually gender-type the task they are performing. A second purpose was to investigate a portion of the expectancy-value model (Eccles et al., 1983), which suggests that perceptions about a task held by others will affect one's perceptions, and consequently, one's confidence at that task. The model also predicts that confidence will influence the importance, or value, an individual places on being good at that task. Thus, the study focused on the sport of coll cheerleading and its various subtasks: cheers and motions, partner stunts, jumps, tumbling, and cheerleading dance. F (n=231) and M (n=170) coll cheerleaders, along with a sample of F (n=81) and M (n=36) coll undergrad, were assessed on 3 variables: (1) self-confidence (defined here as self-concept of ability) at cheerleading and the various subtasks, (2) gender ratings of cheerleading and the subtasks, and (3) the importance, or value, attached to being good at each task. A 2x2 (sex x sample) MANOVA revealed that F cheerleaders possessed more self-confidence in their ability at cheerleading than did their M peers. Furthermore, cheerleaders of both sexes demonstrated that they were aware of the stereotypically feminine attitude held by others toward their sport, although they viewed their sport and the tasks within it as more gender-neutral (appropriate for either sex) than did noncheerleaders. Finally, cheerleaders of both sexes placed more importance on the tasks which they viewed as more appropriate for their sex, with F placing more importance on all items except partner stunts. Implications for physical educators, coaches, and parents are discussed.

245. FRANCIS, N.C. Collegiate soccer players' perceptions of sport psychology, sport psychologists, and sport psychological services. MS, 1991. (D. Gould)

The purpose was to conduct an assessment of coll soccer players' perceptions of, and attitudes toward sport psychology. The specific purposes included an assessment of (1) players' perceptions of the nature of sport psychology; (2) players' sport psychology educ; (3) players' attitudes relative to the use of sport psychological skills; and (4) the kind of services that the players desire from sport psychologists. Questionnaires were admin to 99 M and 44 F coll soccer players representing 8 coll soccer prog in the mid-Atlantic region of the US. In addition, a subsample of 8 of these players were interviewed. Descriptive stat were used to report the closed-ended questionnaire items, and open-ended questionnaire items were subjected to an inductive anal. Finally, each of the 8 interviews were transcribed verbatim, and idiographic profiles were constructed for each interview S under each of the 4 purposes. Results showed that soccer

players' perceptions of sport psychology are accurate but limited, indicating a lack of any detailed understanding. Overall, attitudes toward sport psychology and sport psychological services could best be described as receptive but inquisitive. The players wanted to learn more about the field of sport psychology and what it had to offer. The major implication to arise from the results of this study is the need to educ soccer players about the specifics of sport psychology and about psychological skills that might assist them.

246. HAMEL, J.M. The effects of self-talk on batting performance. MS in Physical Education, 1991. (D. Gill)

The purpose was to examine the effects of a positive self-talk untervention prog on coll fastpitch softball players' performance and self-efficacy. The study lasted 7 wks and the sample consisted of 16 Division II coll fastpitch softball players. Performance scores were collected in a batting cage with subjects hitting against a jugs pitching machine, and self-efficacy scores were obtained with a pre-hitting questionnaire that was completed prior to each hitting trial. Ss were randomly assigned to 1 of 2 gps and scores were collected during 3 conditions: baseline, self-talk, and a placebo goal setting condition. Gp 1 went from the baseline condition to the self-talk condition to the placebo condition; and gp 2 went from the baseline condition to the placebo condition to the self-talk condition. Stat anal (2x3 repeated meas ANOVA using the SPSS-X MANOVA prog) revealed no sig diff between the self-talk and placebo conditions in gp performance scores or self-efficacy scores. However, individual data collected during a post-study interview revealed valuable insight into attitudes of the S's toward the intervention prog.

247. KAVUSSANU, M. The effects of single versus multiple measures of biofeedback on basketball free throw shooting performance. MS, 1992. (D.J. Crews, D.L. Gill)

The purpose was to compare the use of single (i.e., EMG) versus multiple (i.e., EEG, EMG, HR) meas of biofeedback on basketball free throw shooting performance. A secondary purpose was to determine whether changes in self-efficacy and perceived control mediate the biofeedback/performance relationship. Intermediate level basketball players (N=36) were randomly assigned to single (EMG) biofeedback, multimodal biofeedback (EEG, EMG, HR), or to a control reading condition. All gps completed 60 free throws following each treatment session. A condition x time (pre, post) ANOVA showed a time main effect for performance, most likely indicating the presence of a practice effect. The condition main effect and thecondition x time interaction were nonsig. Results indicated that neither single nor multiple biofeedback improved free throw shooting performance. Stepwise multiple regression indicated that self-efficacy was the only sig predictor of performance accounting for approximately 60% and 44% of the variance in pre and posttest performance scores

respectively. ANOVA showed no sig condition and time main effects and no sig condition x time interaction for perceived control or self-efficacy. The relationship between biofeedback performance did not appear to be influenced by either control or self-efficacy.

248. MARTIN, J.J. An investigation of self-efficacy and control theory with elite distance runners. PhD, 1992, 109 pp. (D.L. Gill)

The purpose was to investigate the role of self-efficacy, outcome expectations, and private self-consciousness (PSC) in elite adult distance runners. Correlational anal indicated that both self-efficacy and outcome expectations were related to time for F runners and PSC was positively associated with self-ratings of performance. Elite F distance runners higher in self-efficacy and outcome self-confidence ran faster in their races than runners lower in these variables. Runners high in PSC and with positive outcome expectations were more satisfied with their performance based on outcome than were runners lower in PSC. Runners with neg self-efficacy expectations and high in PSC rated their performance based on time as better than runners with lower PSC. In addition, these same runners missed their time goals by less than runners lower in PSC. These findings provide only weak support for self-efficacy theory and are mixed in their support of control theory and the role of private self-consciousness.

249. SEBREN, M.A. An interpretive inquiry of preservice teachers' reflections and development during a field-based elementary physical education methods course. EdD, 1992. 218 pp. (K.R. Barrett)

The purpose was to anal and describe the reflections and devel of 7 preservice tchrs during a field-based ele PE methods course. The research was guided by a focus on what the preservice tchrs learned, how that learning changed over time, and how reflection impacted the preservice teachers' devel during the methods course. The theoretical context which informed this study included adult cognitive devel, tchr concerns, diff between experts and novices, tchr perspectives, and tchr reflection. Learning was viewed through the lens of cognitive psychology. Data sources included nonparticipant observations of methods course meetings and field exp, documents, interviews, and audiotaped weekly reflection sessions. Data anal involved a constant comparison method. As a result of data anal, the preservice tchrs were divided into 2 gps. The first gp began the semester with an orientation toward teaching as control and shifted to a greater focus on teaching for learning by the end of the semester. The second gp began the semester focused on teaching for learning and continued to grow within that orientation. The 2 gps of preservice tchrs were compared in light of 4 areas of preservice tchr devel which emerged during the study: (a) inclusion of the self in knowing (b) devel of classroom management knowledge, (c) devel of an image of subject matter, and (d) devel within the components of pedagogical content knowledge. The first gp exhibited charac-

teristics similar to but less devel than the second gp by the end of the study. Finally, the potential impact of reflection on preservice tchr devel and implications for tchr educ were explored.

250. STROOPE, S.L. Social loafing and crew: The effects of athlete identifiability on group performance. MS, 1992, 83 pp. (D.R. Gould)

The purpose was to determine whether social loafing exists in an intact athletic team and to examine the effects of individual identifiability on gp performance in rowing. The Ss, 24 M and 20 F coll rowers, were randomly assigned to single-sexed gps of 4. All of the rowers completed a total of 3 rowing ergometer pieces, 1 in each of the 3 treatment conditions (alone, low identifiability, and high identifiability). The Ss rowed individually in the alone condition, and in gps of 4 in the low and high identifiability conditions. The only diff between the low and high identifiability conditions was that the performance splits were publicly announced every 2 min in the high identifiability condition but remained confidential in the low identifiability condition. The DVs include ergometer performance, meas by the distance traveled (in meters) over each of the 3 8-min (M) or 10-min (F) ergometer pieces, and the Ss' perceived effort, identifiability, motivation, and competitiveness meas by the post ergometer piece and post exp questionnaires. The IV was the condition in which the ergometer piece was rowed (alone, low identifiability or high identifiability). A series of one-way, within subjects ANOVAs revealed no sig diff in ergometer performance across the 3 conditions for either the M or F. Furthermore, there was no sig diff in exerted effort between the alone, low identifiability, and high identifiability ergometer conditions. The results of the post ergometer piece and experiment questionnaires revealed that both the M and F felt sig more identifiable to the other 3 rowers in their gp in the high identifiability condition than in either the alone or low identifiability conditions. Both the M and F felt sig more competitive with the other in their 4-person gp when rowing under conditions of high identifiability than when rowing alone.

251. TUFFEY, S.L. The use of psychological skills to facilitate recovery from athletic injury. MS, 1991, 114 pp. (D.R. Gould)

The purpose was to examine the psychological skills and strategies used by injured athletes and the extent to which these variables discriminate between fast and slow healing individuals. The sample was comprised of 21 M and F injured coll athletes who were assessed on several psychological variables after being injured and after complete recovery. Pearson r revealed a sig r between helping ($p<.08$) and emotional ($p<.04$) social support and time to recover such that individuals with more social support recovered faster than estimated. A trend toward sig was evidenced for positive self-talk. Nonsig r were evidenced for self-efficacy, coping skills, imagery, rehabilitation stress, and goal setting with recovery time. One-way ANOVAs calculated on the 7 psychological

variables with a 3-way split of recovery time as the independent variable revealed meaningful results for social support and positive self-talk. A multiple regression found that the athletic trainer's rating of motivation was the only sig predictor of recovery time (R=.79, p<.001). These findings suggest that there is a need for psychological variables to be integrated into the physical rehabilitation of athletic injuries.

252. TURNER, A.D. A model for developing effective decision-making during game participation. MS in Physical Education, 1991, 128 pp. (T. Martinek)

The purpose was to examine the viability of 2 approaches to games teaching. The technique method focused primarily on skill instruction where the skill taught initially was incorporated into a game at the end of each lesson. The game-centered approach started with a game or game-like situation. The initial activity in this method placed an emphasis on the development of tactical awareness and decision-making. Skills were taught only if the need for these arose in game situations. The focus was on the decision-making process that preceded the technique employed. To investigate the effects of the game-centered and technique-centered models of instruction data were collected from 44 MS children. The stdnts were taught field hockey for 10 wks. 2 PE specialists delivered the treatments. Both tchrs used the technique and game-centered approaches with diff gps. The effects of the 2 models were monitored on the development of game playing ability including control, decision-making, and execution, declarative and procedural knowledge, and skill acquisition. Game playing ability was determined by coding the stdnts during game participation. A pretest and posttest were admin for this variable and also for hockey skill (accuracy and time) and knowledge (declarative and procedural). An examination of the control variable during game participation was made by admin a 2x2 (time by group) ANOVA for repeated meas. Decision-making and execution data during game play were anal by using separate 2x2 (time by gp) MANOVA for repeated meas. These anal were conducted to examine pretest and posttest scores, and gp diff across time for dribbling, passing, shooting, and tacking. No sig diff were found between the 2 models of instruction on the devel of game playing ability, hockey knowledge, and skill. Sig time effects were found for the control and execution variables of game playing ability and for the time variable on the skill test. A sig relationship was found between skill (shooting accuracy and time) and game playing ability (control, decision-making, and execution) on the posttest.

253. WATSON, M.A. Professional preparation activities for the student athletic trainer in a collegiate athletic training internship setting. EdD, 1992, 271 pp. (S. Robinson)

The purpose was to design and validate an instrument delineating appropriate

professional prep activities for the stdnt athletic trainer pursuing National Athletic Trainers' Association (NATA) certification through a coll or univ athletic training internship setting. Phase 1 was the generation of the intial document from activities submitted by selected NATA certified and stdnt athletic trainers. Phase II was a Delphi study with members of the 1990-91 NATA Board of Certification and 1990-91 NATA Professional Education Committee serving as the panel of experts. The panel judged the activities on clarity, universality, and congruence to accepted NATA standards, establishing content validity of the document. The resulting document described 81 athletic training professional prep activities. Phase III was a national survey to (a) athletic training educ experts (n=85), (b) certified athletic trainers (n=184), and (c) stdnt athletic trainers (n=68). The respondents were asked to judge the importance of each activity to the professional prep of stdnt athletic trainers and to judge the utility of the document. All activities received importance ratings of "important" or higher from all gps. The document was judged to be "very useful" by all gps. The Kruskal-Wallis one-way ANOVA by ranks identified diff between the gps in 17 of the 81 activities. Phase IV was a Delphi study with selected superivising athletic trainers to ascertain their recommendations for the responsibility levels to be given to stdnt athletic trainers at various stages during the clinical experience. The result was a content valid document describing 81 athletic training activities judged to be important to the professional prep of stdnt athletic trainers with recommendations for progression of the stdnt athletic trainer through the clinical experience.

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254. BARBER, H. An examination of sources and levels of perceived competence in male and female interscholastic coaches. PhD, 1992. (M.R. Weiss)

The declining percentage of F coaches at both the interscholastic and intercoll levels has been well documented. Descriptive studies have identified perceptions of competence as a key psychological construct that may underlie continued coaching motivation. Therefore, this study examined gender diff in sources of competence information and perceptions of competence in coaching. M (n=138) and F (n=102) interscholastic head coaches of girls' teams in Oregon participated. Mailed questionnaires assessed the salience of 9 sources of coaching competence information, perceived competence in several facets of coaching, and potential motives for withdrawing from coaching. Procedures followed stringent guidelines for mail survey research. Multivariate ANCOVA, using age as a covariate, revealed no sig gender diff on the salience of sources of coaching competence information, but sig gender diff were found in perceptions of coaching competence. Follow-up anal indicated that F coaches

rated their perceived competence in teaching sport skills higher than M. Separate canonical R anal for M and F revealed sig relationships between the sources and levels of perceived competence. For F coaches, feedback from parents and improvement of coaching skills were positively related to perceived competence in communication skills and negatively related to skills associated with technical aspects of coaching. Feedback from athletic admin was negatively related to perceptions of competence in communication and positively related to other areas of perceived competence. For M coaches, all of the sources of competence information were positively related to perceived coaching competence. The strength of these relationships was quite low, suggesting that other variables need to be considered as predictors of coaches' perceptions of competence. Finally, MANCOVA revealed that M coaches were more likely to consider withdrawing from coaching due to lack of admin support and F coaches were more likely to withdraw if they perceived themselves to be ineffective in the coaching role than M coaches. The results showed few diff between M and F coaches on psychological constructs related to perceived coaching competence.

255. DUNCAN, S.C. The role of cognitive appraisal and friendship provisions in children's experience of affect in physical activity. PhD, 1992. (M.R. Weiss)

This study examined the mediating role of affect in the influence of achievement-related aspects (perceived success and causal attributions), and friendship provisions (companionship and esteem support), on choice and future expectancies for success and enjoyment. Ss (N=422) were seventh and eighth grade stdnts participating in PE classes. Participants completed a battery of self-report meas designed to assess the variables of interest at the end of a school term before stdnts knew their final grade. Using structural equation modeling technique results confirmed the mediational role of affect on choice and future expectancies for success and enjoyment. Direct influences were also evident from perceived success to future expectancies for success, and from personal control to future expectancies for enjoyment. Companionship and esteem support had a sig direct effect on choice, and esteem support also directly influenced future expectancies for success and enjoyment. Furthermore, stdnts' participation in organized physical activity outside of school (yrs of experience) directly influenced the antecedent variables as well as choice and future expectancies for success. Findings are discussed with reference to the nature of affect, its mediational role in influencing motivation, and its importance in children and youths' physical activity experiences.

256. HU, M-H. Effects of sensory balance training in older adults. PhD in Physical Education, 1991. (M.H. Woollacott)

Falls are serious threats to the health and independence of people over 65. An

increased frequency of falling and postural instability have been correlated with age-related deterioration in the sensory systems. This study examined the effects of balance training on sway and postural control in healthy older adults. The long-term effects of training were followed for 4 wks after completion of the balance training prog. Training included practicing stance under conditions of altered or deprived sensory inputs from the visual, vestibular, and somatosensory systems. 24 healthy older adults (mean=75 yrs) were randomly assigned to the training gp or the control gp. The training gp received standing balance training for 10 days, 1 hr each day, while the following conditions were systematically combined: eyes opened or eyes closed, head neutral or head extended, on a firm support surface or a foam support surface. Postural stability, meas by the root-mean-square value of the anteroposterior torque exerted by the standing S on the platform, improved sig between the 1st and last day of training under training conditions (a) when standing on a foam support or (b) when 2 or more sensory inputs were reduced or distorted. The balance training effect was shown to transfer to other balance tasks. For example, (a) the ability to stand on 1 leg improved sig in the training gp over a 4-wk period, (b) at the end of training, the training gp fell less frequently during a testing condition which minimized somatosensory inputs from the ankles and feet by rotating the support surface proportionate to the spontaneous sway of the subject, and (c) the training gp shortened onset latencies of the neck flexor muscles after training. Results suggest that older adults can improve their ability to reweight and select a reliable sensory input for postural control by practicing stance under a variety of sensory conditions.

257. LANGLEY, D.J. Student cognition during motor skill learning. PhD in Physical Education and Human Movement Studies, 1992. (K. Graber, L. Youngen, P. Schempp)

A theoretical framework published by Doyle in 1977 assumes that stdnt thought processes intervene between tchr behavior and stdnt performance. Few studies in PE have examined this mediation process during skill learning. Therefore, the research questions that guided this study were: (a) What are the stdnt thoughts and perspectives when learning a motor skill, and how do these thoughts and perspectives change during a 10-wk univ activity course? (b) To what degree are stdnt thoughts and perspectives on skill learning issues similar to or diff from the instructor's perspective on the same issues? 20 univ stdnts enrolled in a 10-wk Bowling I course and their instructor served as participants. Both qualitative and quantitative data were collected. Qualitative data included field notes, informal interviews, formal interviews, think-aloud transcripts, written responses to daily questions, and various instructional documents. Quantitative data included bowling scores, the total strikes and spares per game, the total pins converted on the 1st throw per frame, and the SD of this stat. Qualitative data were anal by using techniques associated with grounded theory. Themes were gradually developed and focused on describing the

learning environment, stdnt thoughts and perspectives during skill learning, and diff between instructor and stdnt perspectives on skill learning. Changes in quantitative performance were anal through a within-subject repeated meas MANOVA and associated follow-up tests. The following results were derived from the data: (a) Stdnt learning can be characterized as a personal, constructive, and meaning-filled process. Stdnts behaved in an active rather than a passive role regarding the processes affecting their learning. (b) Major diff were found between stdnt and instructor perspectives on stdnt skill learning. (c) Qualitative changes in stdnt thoughts and perspectives were evident on a gp level despite the lack of robust changes in the quantitative performance.

258. LUCKIN, K.A. A biomechanical analysis of the exercise-induced dysfunction of the rat gastrocnemius sarcoplasmic reticulum Ca^{2+}-ATPase protein. PhD, 1992. (G.A. Klug)

Sarcoplasmic reticulum (SR) isolated from the deep red portion of the rat gastrocnemius muscle after a single bout of prolonged exercise displayed depressed Ca^{2+}-stimulated ATPase activity over a temp range of 15-42.5°C when compared to SR obtained from control muscle. Inclusion of calcium ionophore failed to restore the depressed ATPase activity to control values, but it did eliminate the temp-induced ATPase activity transition of both gps. This depression was also manifest as an increased activation energy. SR vesicles from both gps showed no diff in steady-state fluorescence anisotropy meas indicating no gross structural incongruities in the vesicular bilayer. Binding anal of fluorescein isothiocyanate (FITC) indicated that SR vesicles prepared from exercised muscle displayed a 40% reduction in FITC binding capacity with no apparent change in K_d. Additionally, these vesicles showed a depressed rate of ATP hydrolysis over a broad concentration range. Calculated affinity constant K_m yielded no diff between gps (ex. 4.25±2.13, con. 5.22±1.63) (M x $1x10^6$±SEM); however, a sig depression in reaction rate constant K_{cat} was observed (ex. 0.89±0.10, con. 1.83±0.12) $(min*mg)^{-1}$±SEM). Neither trypsin digestion nor vanadate-induced crystallization revealed any structural dissimilarities of Ca^{2+}-ATPase between gps. Furthermore, inhibition of ATP hydrolysis with dicyclohexylcarboddimide (DCCD) indicated that the Ca^{2+} binding site of Ca^{2+}-ATPase was unaltered in response to the exercise bout. However, SR vesicles isolated from exercised muscle showed a depressed ability to accumulate phosphoprotein (ex. 0.34±0.02, con. 0.54±0.07) (nmol/mg SR). These findings support the conclusion that a single bout of exercise induces a structural change in the Ca^{2+}ATPase protein that is restricted to the nucleotide binding region with no association to the tryptic cleavage or dimer contact sites and is not a direct result of gross lipid alterations or increased muscle temp. Reversal of this phenomenon (as meas by Ca^{2+} uptake, Ca^{2+} release, Ca^{2+}-ATPase activity, and accumulation of phosphoprotein) was complete within 2 hrs of the exercise bout. These data support the conclusion that the depression and the recovery of Ca^{2+} uptake and ATPase activity are

linked to the capacity to carry out the obligatory ATPase protein phosphorylation during the catalytic cycle.

259. RADCLIFFE, J.C. Relationships between lower extremity loading and depth jump performance. MS, 1992. (L.R. Osternig)

The increased use of eccentric muscular exercise to augment performance and rehabilitation has generated questions regarding optimal and safe training loads. It has been suggested that lower extremity control of a load equal to 1 1/2 to 2 times BW is prerequisite to successful eccentric "depth" jumping. The purpose of this study was to investigate the relationship between lower extremity loading as meas by the parallel back squat exercise and successful eccentric exercise. A second purpose was to determine the variable effect of depth jumps from diff hts on vertical jump performance. 70 M and F intercoll athletes were tested for (a) max % BW controlled by the lower extremities via parallel squat exercise, (b) max vertical jump reach, and (c) max depth jumps from 6 hts ranging from 30-107 cm. The data revealed sig r between parallel squat performance and the ability to successfully control increasing depth jump hts ($r=0.326$; $p<0.01$) and jump reach performance ($r=0.283$; $p<0.05$). No sig r were found between squat performance and depth jump performance from any of the individual hts. There was an inverse relationship found between depth jump performance and depth jump drop ht. Ave max vertical jump performance from ground level exceeded all but the lowest (30cm) depth jump ht. The results suggest that parallel squat performance represents a small % (11%) of the variance contributing to controlling increasing depth jump hts. Furthermore, depth jump training from higher hts may not be effective for optimal skill performances.

UNIVERSITY OF QUEENSLAND **(B.M. QUIGLEY)**
ST. LUCIA, QUEENSLAND, AUSTRALIA

260. ABERNETHY, P.J. Interactions between strength and endurance training. PhD, 1990.

The purpose was to investigate the interaction between isokinetic strength training and intensive endurance training of the triceps brachii. It was hypothesized that strength devel could be inhibited by the endurance aspect of concurrent training at the level of the skeletal muscle. Specifically, endurance training that promoted selective slow twitch (ST) fiber hypertrophy would produce less strength devel when combined with strength training than strength training completed in isolation. The isokinetic strength training protocol used is normally characterized by fast twitch (FT) fiber hypertrophy. 15 exercise leaders (9 M and 6 F) were randomly allocated to endurance (N=5), strength (N=5), and concurrent (N=5) training conditions. The triceps brachii was the

muscle group trained. Endurance training involved 5 work bouts of arm cranking on 3 alternate days a wk for 7 wks. Each incremental work bout lasted 5 min and consisted of workloads between 40-100% of peak arm ergometer oxygen consumption ($PAEVO_2$). Strength training was undertaken on 3 alternate days each wk for 7 wks. Ss completed as many max forearm extension and flexion repetitions as possible in 2 30-sec bouts. The concurrent gp completed both endurance and strength training on the same day. 7 wks strength training produced increments in T30 at 5 contractile speeds; there was no skeletal muscle fiber hypertrophy. Increments in T30 following strength training were attributed to neural factors. Endurance training produced consistent hypertrophy of FT and ST fibers. At the conclusion of training there were sig increments in T30. T30 devel was attributed to fiber hyperytrophy. For the concurrent gp, T30 was increased at all contractile speeds greater than 1.04 $rad.sec^{-1}$. There was no consistent pattern of FT or ST fiber hypertrophy; increments in T30 were attributed to neural adaptations. Mean $PAEVO_2$ increased sig from W0 to W7 for both the endurance and concurrent gps. The duration of the tests was sig longer following training than prior to it for both the endurance (44%) and concurrent (42%) gps. These increments were thought to be partially due to increments in stroke volume as reflected in increments of peak O_2 pulse for both the endurance (30.7%) and concurrent (23.3%) gps. Changes in $PAEVO_2$ were also r with changes in peak V_E. In addition, T_{vent} and SDH activity were not affected by any of the training regimens. This suggests that the endurance training may not have enhanced mitochondrial enzyme activity. Results support the notion that not all interactions between strength and endurance training are negative and facilitated the devel of models that provide insights into the interactions and mechanisms of concurrent training.

261. HASTIE, P.A. Task accountability in school physical education and sports settings. PhD in Human Movement Studies, 1990. (J. Saunders)

The concept of accountability provided the focus for this examination of how acd work is accomplished in HS PE and sports settings. The PE study of Tousignant (1982) served as the model for an initial study that investigated accountability in a coaching setting. It was concluded that similar task systems operate in both teaching and coaching, altho 2 extra types of tasks were identified in coaching. The functional behaviors of tchrs and coaches were then examined in 2 further studies to differentiate between those who were more and less effective in promoting involvement in classes or training sessions. Results of both studies identified active instruction as a key strategy for tchers and coaches in facilitating involvement in PE classes and sports training sessions. Where tchrs and coaches were constantly giving information about the task and feedback to stdnts while they were working, greater levels of acd learning time-PE (ALT-PE) were recorded than when the instructors were passively observing stdnts. Monitoring was also identified as a key strategy. Stdnts were more likely

to be appropriately involved in the set tasks when the tchr was watching the stdnts in close proximity rather than when the stdnts could not be seen by the tchr. Questionnaire data were collected from HS PE stdnts and sports players (n=1028) as the basis for an anal of stdnt/players' perceptions of their tchr/coaches' use of accountability strategies. A model was proposed to determine interrelationships between the variables associated with accountability. This model was tested through linear structural relations and confirmed that in PE classes, the accountability factors of monitoring directly affected involvement, while active instruction affected involvement indirectly throughout the stdnts' valuing of the tchr. In sports settings, monitoring did not show sig regression effects, while active instruction showed a strong relationship. Throughout the series of studies, it was possible to differentiate effective tchrs and coaches through their use of accountability strategies and it was verified that stdnts perceived these strategies as affecting their level of involvement.

262. JENKINS, D.G. The critical power function: Aerobic power, anaerobic work capacity, and their responses to training. PhD, 1991, 276 pp.

When bouts of muscular work are performed to exhaustion at diff intensities, the regression of max work (work limit) on max time (time limit) is referred to as the critical power function (Monod & Scherrer, 1965). This function has been thought to provide indices of both aerobic fitness (as represented by the slope) and anaerobic capacity (given by the y-intercept). With preliminary investigations having shown that the slope and y-intercept provided by the critical power function were related to endurance ability and anaerobic work capacity (AWC) respectively, two larger investigations evaluated the influence of training on each characteristic. The present research found that (1) critical power slightly overestimated aerobic ability with most Ss and (2) the y-intercept available from the critical power curve was closely related to intermittent, high intensity exercise performance. Moreover, each characteristic was responsive to appropriate conditioning. Whereas endurance training induced a marked increase in the gradient, high intensity exercise training caused the y-intercept to move vertically along the y-axis. These investigations support the use of critical power as an inexpensive and noninvasive means with which the ability for both aerobic and anaerobic work can be assessed.

263. QUEK, J-J. Coding and development of movement recall in laboratory and field settings. PhD, 1990.

The purpose was to ascertain whether the same principles which govern the motor short term memory (STM) performance of adults on laboratory tasks govern the performance of school-aged children performing gross motor skills in a field setting. A set of 8 experiments was conducted, consisting of 4 pairs of exp. Each pair utilized identical experimental designs with the 1st conducted in the laboratory using a traditional linear positioning task and the 2nd

conducted in the field involving a gross walking/jogging analogue of the laboratory task. In exp 1 and 2 100 school-aged Ss (drawn evenly from 6, 9, 12, 15, & 18 yr age gps) recalled constrained CMs using either distance or location cues from altered recall starting positions (RSPs). The findings from the 2 task setting were generally similar with clear developmental trends on both tasks, a persistent superiority for recall of location rather than distance, and, for the younger Ss at least, mutual interference effects between distance and location in terms of response bias. Exp 3 and 4 compared recall performance of constrained and preselected mvmt under both task settings. The same basic findings regarding age and motor STM principles emerged in both settings and for both mvmt types. Exp 5 and 6 examined the same variables as Exp 1 and 2 but with preselected rather than constrained mvmt. Again performance improved with age, mvmt length interacted with cue utility in the laboratory but not in the field task, and distance and location cues interfered with each other for all age gps in the laboratory task and for the younger Ss in the field study. To facilitate the encoding of location cues and improve the ecological validity of the exp, vision was introduced in Exp 7 and 8, using an experimental design which included vision in both the encoding and retrieval stages (VK-VK), vision selectively in only the encoding or retrieval stages (VK-K & K-VK), and no vision (K-K). Again mvmt location was sig more accurately recalled than mvmt distance. Likewise, the mutual interaction of distance and location cues emerged for all the age gps with the Ss being apparently unable to recall either mvmt cue without the interference of the other parameter inherent within the mvmt, even with the availability of vision. The responses of the VK-VK gp were sig more accurate than the other 3 gps. Age interacted only minimally with the other main factors influencing motor STM indicating that, as a general rule, the same principles governing motor STM performance in adults also act in controlling the motor STM performance of school-aged children. The same basic principles and limitations appear to underlie motor STM performance regardless of whether a unidirectional single limb movement or a gross bipedal mvmt is being controlled, arguing against task-specific or limb-specific explanations of motor STM performance.

264. WARD, J.J. Evaluation of the set-point and proportional control models of human thermoregulation during exercise. PhD in Human Movement Studies, 1991, 248 pp. (B.M. Quigley)

Two experiments were undertaken. The 1st examined the set-point model of thermoregulation that describes thermal control as analogous to a heating/cooling unit with a thermostat that is reset during exercise based on the relative exercise intensity. 8 M cyclists served as Ss. Oesophageal temp (T_{oe}) was monitored while Ss competed 2 workloads (50% + 70% VO_{2max}) in air and then in water where the skin temp (T_{sk}) and VO_2's from the air trials were reproduced. The tests were then repeated in reverse sequence to balance any ordering effect. ANOVA showed sig diff with T_{oe} 0.63°C higher in air than in water at

the 50% VO_{2max} workload and 1.15°C higher in air than in water at the 70% VO_{2max} workload. The data did not support the model of core temp being regulated to an elevated level relative to exercise intensity. The 2nd exp investigated a proportional control model by examining the relationship between the temp at the core and skin and the effector response of skin blood flow during exercise in water. Blood flow was calculated for 11 Ss from total body conductance using a regression formula developed for each S from 3 or 4 diff workloads in water. There was not a sig r between core temp or skin temp and the change in total body conductance. Therefore, the effector response of skin blood flow could not be described by a model where effector response is proportional to temp elevation.

UNIVERSITY OF SOUTHERN MISSISSIPPI
HATTIESBURG, MISSISSIPPI

265. HARRELSON, G. L. Predictors of success on the National Athletic Trainers Association certification examination. PhD in Health, Physical Education,and Recreation. 1992. (B. Larson)

The purpose was to investigate athletic training stdnts' success on the National Athletic Trainers Association (NATA) Certification Exam and the degree to which this success was related to selected variables. 52 Ss were selected who were enrolled in the Univ of Southern MS athletic training curr since 1978 and have taken the NATA's Certification Exam. The relationship between the IVs of overall GPA, athletic training GPA, acd minor, acd minor GPA, ACT composite score, gender, fraternity or sorority affiliation, teaching or non-teaching, and the number of semesters enrolled the the Univ of Southern MS and the criterion variables of attempts before successful completion of the entire NATA Certification Exam and its 3 subcomponents were anal within the framework of Multiple Linear Regression. The stat techniques of multiple r and semi-partial were used. Data anal shows that none of the IVs in this investigation can be used to independently predict success on the NATA Certification Exam and its 3 subcomponents. However, there does appear to be a strong interrelationship between several of the independent variables.

UNIVERSITY OF TENNESSEE
KNOXVILLE, TENNESSEE

266. GORMAN, S.L. Student-athlete activities and time usage. MS in Physical Education, 1991.

The purpose was to determine the specific activities of M and F stndt-athlete basketball players and how much time they spend in these activities. 5 M's & 6 F's basketball teams (7 univ) from the Southeastern Conference participated in this study. The Ss, stdnt-athlete basketball players, completed a time-use log

and brief questionnaire based on the goals identified by several athletic admin and Southeastern Conference officials. Each S completed the survey once during pre-season basketball practice and once during the Southeastern Conference playing sched. Comparisons of the pre-season and in-season data from the time-use survey were made by using means, SD and percentages. It was concluded that the stdnt-athlete basketball players who participated in this study spent more time in acds (ave of 12 hrs per 48 hr time period) than in athletic-related activities (ave of 8 hrs per 48 hr time period). During both surveys F basketball stdnt-athletes spent more time in acds than M, while the M basketball stndt-athletes spent more time than the F in athletics.

UNIVERSITY OF WATERLOO
WATERLOO, ONTARIO, CANADA

267. COPELAND, R. P. Sport sponsorship in Canada: A study of exchange between corporate sponsors and sport groups. MA in Recreation and Leisure Sports, 1991.

This study was conducted to gain insight into sport sponsorship in Canada from the perspective of both sponsors and sport gps. The study gps included Canadian companies with a history of sport sponsorship involvement (n=75) and a combined sample of sport governing bodies representing national and provincial levels of sport (n=72). Exchange theory was used as a theoretical guide to examine relationships between these 2 gps. Anal were conducted with respect to: the importance of diff sponsorship criteria used by sponsors; the level of agreement between sport gps' perceptions of sponsors' criteria, and the actual importance ratings indicated by sponsors; the reasons cited by sponsors and sport governing bodies for discontinuing sponsorships; relationships between perceived dependency and thelikelihood of initiating and terminating sport sponsorships; evaluative criteria used by sponsors and sport governing bodies to determine success of sport sponsorship; sport sponsorship's "fit" within the overall marketing strategy of companies; and perceptions of sponsors and sport gps toward one another. Findings indicated sponsors considered sport sponsorship to be a strategic activity used to achieve commercial objectives. Important criteria indicated by corporate sponsors included "exclusivity," "awareness," and "image." "Sales" and "dealer/trade feedback" were cited as important meas of a successful sponsorship. Sport gps exhibited an overall understanding of sponsorship criteria that were considered important to sponsors. However, sport governing bodies over- valued the importance placed by sponsors on a number of criteria. Companies were more likely to discontinue sponsorship than sport governing bodies, and attributed discontinuance to poor return on investment, unmet objectives, and changes in corporate strategy. Sport governing bodies and sponsors both agreed that sport gps were more likely to initiate sponsorship relationships, and less likely to terminate them.

268. FENNELL, D.A. A profile of ecotourists and the benefits derived from their experience: A Costa Rican case study. MA in Recreation and Leisure Studies, 1990.

Ecotourism, as an alternative type of tourism, is seen as an effective manner with which to maintain natural areas and contribute economically at national and community levels. This is an exploratory study that seeks to identify an ecotourist profile. In addition, benefits sought by ecotourists are uncovered through an anal of both the natural resource base and the tour of service industry. Costa Rica is known to possess a dynamic and growing ecotourism industry, and because of its attractiveness to Canadian ecotourists, is used as a case study. Data were collected via a mailed questionnaire. 77 of 100 questionnaires were collected and utilized for anal. Findings suggest that ecotourists are financially well-off, mostly M and typically 54.0 yrs of age. They enjoy travel and do so readily, and are well educated with multiple conservation gp affiliations. Bird watching is a favorite activity along with hiking and nature study. Tour gps consist typically of 11 individuals. Some of the important sources consulted prior to departure include friends/family, films, and magazines. Ecotourists do not perceive that overall they have an adverse affect on the natural environments they interact with. When compared with the ave Canadian traveller, ecotourists were found to be looking for more variety and new experiences. Wilderness areas, national parks and reserves, mountains, and lakes and streams were more important to the ecotourist than for the ave Canadian traveler.

269. KERR, S.R. A comparative study of leisure lifestyles: Three developmentally disabled and three nondisabled older adults. MA in Recreation and Leisure Studies, 1991.

The purpose was to compare the leisure lifestyles of 3 developmentally disabled and 3 nondisabled older adults. Issues such as leisure needs and interests as well as the opportunities and barriers experienced by these participants were examined. This inductive, qualitative, exploratory study examined life satisfaction in relation to these people's life exp. The results of this study aid in our understanding of the meaning of leisure through the participants' exp and perceptions. Data were collected by use of leisure journals and qualitative interviews with the 6 participants. Data were anal and 3 common patterns emerged. These patterns were associated with the social networks of the participants and how those networks influenced their leisure, types of leisure activities engaged in, and choice and decision-making with respect to leisure. Themes also derived from the data, which aid in our understanding of the participants' leisure experiences, were related to barriers to leisure and benefits of leisure. This study found that the 2 gps had diff leisure lifestyles. The diff were found to be influenced by lack of social networks and lack of choice that the developmentally disabled older adults

experience in their leisure. Recommendations resulting from this study include suggestions to encourage linking the developmentally disabled older adults with the community through "bridge-building" efforts. Leisure educ and teaching of decision-making skills to the developmentally disabled adults would help to enrich their leisure lifestyles.

270. WONG, L. The use of program evaluation in Ontario older adult centers. MA in Recreation and Leisure Studies, 1991.

The purpose was to describe the use of program evaluation in Ontario older adults centers and to determine the "readiness" of these centers to conduct evaluations. The study examined the aspects that centers evaluate, the evaluation purposes, the techniques used, the evaluability of centers, and the organizational characteristics associated with evaluation use. The sample consisted of 112 full members of the Older Adult Centres' Association of Ontario (OACAO). Data were collected with the use of a self-admin questionnaire. A total of 85 centers returned the questionnaire which represented a 75.9% response rate. The results showed that older adult centers tend to be involved in forms of evaluation that focus predominately on the participant. Evaluations were most often conducted to determine participant satisfaction and the most frequently used technique was verbal feedback from participants. These less sophisticated forms of evaluation are done primarily at the end of the prog. An examination of the items deemed important in determining service quality revealed that staff performance was the most important dimension and tangibles were the least important. Organizational characteristics concerning the financial circumstances, the personnel, and the user numbers were found to be related to some components of the evaluation process. Evaluations concerning the participant are frequently used by centers and as the number of resources increased, there seemed to be an increase in this use of participant oriented evaluations. Although there seems to be a positive attitude toward conducting evaluations, many centers must improve upon their prog and staff characteristics in order to enhance their evaluability. Centers should establish written objectives, have prog descriptions and implementations, and increase the level of evaluation educ among staff. Improving upon these diff areas can help in professionalizing the operation of older adult centers and ensure effective service delivery to their participants.

UNIVERSITY OF WESTERN ONTARIO
LONDON, ONTARIO, CANADA

271. OVEREND, T.J. Determinants of critical power and anaerobic work capacity in young and elderly men. PhD, 1991.

Determinants of critical power (CP, the theoretical max rate of nonfatiguing work) and anaerobic work capacity (AWC, a finite energetic reserve from intramuscular sources) were determined in young (n=13, 24.5 yr) and elderly M (n=12, 70.7 yr). The purposes of the 4 studies were to: (1a) determine and compare CP and AWC in young and elderly M; (1b) determine if CP does represent a true max rate of nonfatiguing work; (2) determine thigh component cross-sectional areas (CSA) and volumes; (3) determine the strength and strength/CSA ratios of the knee extensors and knee flexors; and (4) identify determinants of CP and AWC. The first study showed that CP (115 vs 177 watts) and AWC (8.1 vs 13.6 kJ) were sig reduced in elderly M. Temporal profiles of CV and metabolic variables monitored during prolonged (24 min) cycle exercise at CP indicated that CP elicited a sig greater VO_2 in the elderly M (91.5% vs 85.2% of VO_{2max}) and that CP did not represent a true rate of non-fatiguing work in either young or elderly M. The computed tomography scans used in the second study indicated that subcutaneous and intramuscular fat in the thigh were sig increased in the elderly M, while the quadriceps and hamstring muscle CSA and volumes were decreased in comparison to the young M. The third study showed that elderly M were weaker (22-32%) in both concentric isometric and isokinetic (120°/s) knee flexion and extension. Isometric strength: CSA ratios were not diff between the 2 gps, but the isokinetic ratios of the elderly M were sig decreased, suggesting that their decline in isokinetic strength was greater than could be accounted for by their decrease in muscle CSA. Finally, the fourth study indicated that while CP was correlated with meas of muscle CSA and volume, it was most strongly related to VO_{2max} and max power output in both young and elderly M.

UNIVERSITY OF WISCONSIN AT MADISON
MADISON, WISCONSIN

272. COWAN, K.L. The current status of dance education in Wisconsin and developmental influences. PhD in Physical Education and Dance, 1990. (M.A. Brennan)

This is a descriptive study of the current status of dance education in Wisconsin from 1987-1989. Three major areas of consideration are included : Dance in Educ, Dance Organizations, and Dance Companies. Sig events in the devel of dance in educ, dance organizations, and dance companies in the state which might have characterized or influenced the current status are highlighted.

WASHINGTON STATE UNIVERSITY (K.P. DEPAUW)
PULLMAN, WASHINGTON

273. CARLSON, P.D. The effect of tactile and whole/part drill on the acquisition of opposition in a successful basketball lay-up. MS in Physical Education, 1991. 107 pp. (M. Mowatt)

The problem was to examine basketball lay-up opposition form and shooting accuracy development while using drills emphasizing tactile, whole and/or part arrangement. 32 middle school aged Ss were randomly assigned to 4 gps while conducting 3 sessions of 10 massed trials and were evaluated with the study developed criterion instrument. Multiple ANOVA for the sig ($p<.05$) of variability among 4 means regarding opposition form and shooting accuracy were conducted. The sig main gp effect for shooting accuracy, $F(3,28)=4.59$, $p=.01$ with no over time effect, $F(1,28)=3.93$, $P=.092$, indicated that the initial gp diff was not affected by the study treatment. Mean pre to post % changes were modest for the first 3 gps, 3.2%, 5.6%, 13.3%, while the 4th gp slightly decreased, .8%. The opposition form MANOVA indicated no main effect, $F(3,28)=.92$, $p=.446$, but displayed an over time effect, $F(1,28)=31.16$, $p=.0001$. Overall results indicate that Ss sig improved in lay-up opposition form but not in shooting accuracy in all 4 drill/gps used in this study.

274. CHEN, J.A. Selected physiological variables and distance running performance among nonelite heterogeneous groups of male and female runners. MS in Physical Education, 1991, 89 pp. (W.G. Thorland)

The purpose was to determine the relationship between VO_{2max}, running economy, ventilatory threshold, and body comp with performance runs of 1.5 and 3.0 miles. The Ss were 13 M and 11 F coll stdnts ranging in age from 18 to 33 yrs. Following the performance runs, laboratory tests for running economy, ventilatory threshold, VO_{2max}, and body comp were conducted. VO_{2max}, running economy, and BF were sig contributors to running performance in the M and F. BF, however, contributed only to the 1.5 mile run performance. Ventilatory threshold did not sig contribute to the 1.5 or 3.0 mile run times in either sex. M and F showed sig diff in relative fat, VO_{2max}, and both performance runs. There was no sig diff in running economy or ventilatory threshold between the sexes. At either distance, running economy was the primary performance predictor in the M while VO_{2max} was the greatest influence on the performance of the F.

275. DURRETT, M.V. Infrared interactance: Reliability and validity in determining body composition. MS in Physical Education, 1991, 56 pp. (L. Bruya)

Infrared interactance was assessed for validity in measuring body comp compared to hydrodensiometry and skinfolds. Reliability of infrared meas was

also tested. Ss were 32 Caucasian M between 25 and 39 yrs of age. Infrared meas were assessed at 9 sites using 2 wavelengths 940 nm and 950 nm. Skinfold meas were taken at 8 sites with the mean of 3 meas used. Body density was determined by hydrodensiometry, with RV determined by plethysmography. BF was calculated using the formula by Brozek et al. (1963). Associations between body density via hydrodensiometry and infrared interactance resulted in a sig r (r=0.83 for 940 nm, and r=0.85 for 950 nm) only at the biceps site. Waist circumference was also sig r with body density (r=0.92). Reliability coefficients indicated that repeated infrared meas were reliable (r=0.97 for 940 nm, and r=0.96 for 950 nm) at the biceps site. ANOVA indicated that the best predictor of body density included 1 optical density and waist circumference (R^2=.93,SE=0.0043). Infrared interactance was demonstrated to be a valid method of determining body density in this pop, yet simple anthropometric meas proved to be as valid, more reliable, and much less costly.

276. ECKL, C. Attitudes towards physical activity among American and German senior citizens. MS in Physical Education, 1990, 104 pp. (K.P. DePauw)

US senior citizens (n=88) residing in the Spokane and Pullman areas, WA, and German senior citizens (n=85) residing in Frankfurt, Hessen, 60 yrs and older, were selected in order to investigate attitudes toward physical activity. Data were collected for demographics, involvement in physical activity, socialization agents and their influence in physical activity, and attitudes toward physical activity. In general, it seemed that the agent "self" was most important for the samples to participate in physical activity, followed by "friend," "doctor," "wife," "husband," and "children." Sig diff were found for the agents doctor and husband. Americans were more influenced by doctor to participate in physical activity than Germans. Germans were more influenced by husband to participate in activity than Americans. In general, the finding for attitudes toward physical activity were similar. The German sample viewed physical activity as a pursuit of pleasure and thrill as sig more important than US Ss. The US sample viewed physical activity as a pursuit of health/fitness as sig more important than German Ss. The 2 countries were more similar than dissimilar.

277. FIFE, L.K. The reliability of the Dynavec ™ LVD: A tool for the assessment of three dimensional lumbar spinal motion. MS in Physical Education, 1991, 152 pp. (L. Bruya)

The intra-rater, inter-rater, and internal consistency reliabilities of meas lumbar ROM with the Dynavec ™ LVD were assessed by repeatedly examining 6 M Ss (mean age=20.8 yrs, SD=2.1 yrs) with 5 different raters. The following component mvmts and mvmt combinations were meas: flexion, extension, left and right lateral bending, left and eight axial rotation, total sagittal mvmt, total frontal mvmt, total transverse mvmt, and total planar mvmt. Intra-class reliability coefficients for each of the above mvmts and mvmt combinations

were calculated from 3-way ANOVA with repeated meas. Additionally, average coefficients of variation and 95% confidence intervals were calculated for each component mvmt. The results indicated good to high intra-rater, inter-rater, and internal consistency reliability coefficients for all component and combined mvmts except inter-rater flexion which had fair reliability. Average coefficients of variation for all component mvmts were below 8.5%. The 95% confidence intervals ranged from ± 0.73° for flexion to ±2.63° for left rotation.

278. HARBOUR, S.K. Heart rate responses of collegiate female volleyball players during competition. MS in Physical Education, 1991, 93 pp. (S.Blank)

The problem was to investigate exercise intensity and estimate the extent to which the aerobic capacity is utilized during a mock women's intercoll volleyball competition at the NCAA Division I level. HR response data were collected from 6 Univ of Idaho F volleyball athletes during a competitive match. HR was telemetrically monitored throughout the match and a simultaneous videotape recording was produced to provide rally and rest duration as well as game length and court position corresponding to HR meas. HR response during competitive volleyball was generally higher in the front court than in the back for all positions except for the setter who demonstrated higher percentages of maximum HR in the back court. During the mock competition, most of the athletes maintained a HR equal to that of at least 60% of VO_{2max} for 30 min. Rally to relief ratios (approximately 1:1.09-1.3) were within the guidelines for effective interval training. Intercoll volleyball competition at the NCAA Division I level provides an interval training effect and requires high levels of both aerobic and anaerobic fitness. Exercise intensity levels vary according to assigned court position and whether the athlete is in the front or back court.

279. GAMBETTA, C. Selected characteristics of United States wheelchair basketball players, their sport participation, and their attitudes toward their coaches. MS in Physical Education, 1991, 86 pp. (K. DePauw)

The purpose was to investigate selected characteristics of U.S. wheelchair basketball players, their sport participation, and attitude toward their coaches. The 81 Ss, 56 M (69.1%) between 18 and 54 yrs and 25 F (30.9%) between 18 and 32 yrs responded to a 36-item survey on a 4-point Likert-type scale. Scores ranged from 1 to 4 (1 being the most liked and 4 being the least liked). There were no stat sig diff found for the status of the coach (Q10) with (a) gender, (b) onset of disability, (c) education, (d) age at initiation of wheelchair basketball, and (e) coaches disability. There were no sig diff for status of coach with the interaction between gender and age at initiation of playing wheelchair basketball, and gender and onset of disability. The only sig diff found was the status of the coach and accomplishment on the team with a value of .00, at $p<.05$. Based on Tukey's test the F gp who had an able-bodied coach thought that the coach interfered with the accomplishment on the team. The socialization agent

"family" was found to be the most influential agent for Ss. "Friend," "peer groups," "coach," "school," and "teacher" followed in a ranking order from 2-6. The agents "school" and "friends" were found to be sig diff at $p<.05$. 28 coaches were surveyed to find background information for better understanding of the athletes' responses. 25 were M (89.3%) and 3 were F (10.7%). 19 were able-bodied and 9 were disabled. Only one coach was certified in the sport that he was coaching.

280. JOHANSSON, J-O. Social aspects of sport participation of Swedish athletes with disabilities: A pilot study. MS in Physical Education, 1991, 106 pp. (K.P. DePauw)

The social aspects of sport participation found among Swedish disabled athletes were investigated through a modified version of Gavron's Early Play and Recreation Experiences Questionnaire. The questionnaire was translated into Swedish and copies distributed in July 1989. The pop was disabled M and F (ages 16-60), 28 M and 18 F, with an ave age of 31 yrs, of whom 43% were mvmt disabled, 33% mentally disabled, and 24% spinal cord injured. Participation was varied; many participated in multiple sports, where 74% participated before the age of 16. M tended to participate in the more popular sports and in more sports than F, both before and after 16. Although respondents in the older age gps participated less than younger age gps during their childhood, the younger age gp had less total sport experience. Less than 67% indicated that family involvement in sport was low before they reached 16 yrs, but younger age gps were found to have more family support. Friends and other athletes, and self were the dominating socializing agents for sport participation. The results indicate few diff across disability gps which could be a reflection of the Swedish sport system.

281. LANDLE, K.M. A submaximal treadmill walking protocol for predicting maximal oxygen consumption. MS in Physical Education, 1991, 59 pp. (L.D. Bruya)

The problem was to design a submax walking treadmill protocol for predicting VO_{2max} in 15 M, recreational runners, aged 19-32 yrs. Each S commenced treadmill walking at 2.4 METS. Workload was increased 2METS·min^{-1} until the first stage (HR=120-140). The S continued to walk at the 1st stage until a SS HR (HR±5bpm) was established. Workload was increased at the rate of 2 METS·min^{-1} until the 2nd stage (HR=150-170). The S continued to walk at stage 2 until SS HR was established. Treadmill grade was then reduced to 10% incline with a maintenance of speed for 2 min. Treadmill velocity then was increased 1 mi·hr^{-1}·min^{-1} until volitional exhaustion of the S. Expired pulmonary ventilation was collected and anal for O_2 and CO_2 content. HR was recorded with an ECG monitor. A validation test was performed 5 to 7 days later. A weighted regression equation developed utilizing SS HR at stages 1 and 2,

workload, and MET level at stages 1 and 2 was sig ($p<0.05$) with a SE of 1.38 METS and a SEE of 8.3% of actual measured VO_{2max}.

282. MAYNARD, D.N. Decisions of the Appellate Courts relating to physical education, sports, and facilities of the state of Washington. MS in Physical Education, 1992, 133 pp. (S. Adams)

The purpose was to organize a historical account, present what appear to be the precedent-setting cases, interpret the influence of statutory laws, and discuss the implications for the future. Primary sources were used to obtain the case studies. Sources include the *Washington Reporter*, *Washington Reporter* (2nd ed.), *Pacific Reporter*, and *Washington Appeals*. Significant decisions may be summarized as follows: School districts may be held liable for their negligent acts or omissions; school districts owe a duty of care to make sure that pupils are supervised; lack of supervision can be the approximate cause of an injury for which the district can be held liable; school districts are responsible for making sure their facilities are safe for the stdnts and invitees of the district; school districts may issue separate teaching and coaching contracts; teaching contracts are covered under the continuing contract law but coaching contracts are not; and suits against school districts should not be dismissed if reasonable minds can differ on who is at fault. Statutory laws RCW 28.58.030 and RCW 4.96.020 have impacted court decisions the most throughout the yrs. The future entails continual challenges in the area of school tort liability and supervision.

283. McKENZIE, J.W. The level of collegiate athletic participation and its effects on suicidal ideation, depressive symptoms, psychological distress, and hopelessness. MS in Physical Education, 1992, 56 pp. (S. Adams)

The problem was to determine if there was a diff in the degree of suicidal ideation, depressive symptoms, psychological distress, and hopelessness in 4 coll stdnt pop at Washington State Univ. The Activity and Thought Questionnaire, the Beck Depression Inventory, the Symptom Checklist-90-Revised, and the Hopelessness Scale were admin to 159 undergrad stdnts. The 4 gps were M varsity stdnt-athletes (n=38), M nonvarsity stdnts (n=38), F varsity stdnt-athletes (n=44), and F nonvarsity stdnts (n=39). Chi square anal on the nonparametric data generated from the Activity and Thought Questionnaire yielded one sig diff. The M varsity stdnt-athletes worked out sig more in the categories of over 20 hrs/wk and of 15-19 hrs/wk than did the M nonvarsity stdnts. The F nonvarsity stdnts worked out sig less than did the F varsity stdnt-athletes in the 1-5 hrs/wk category. A 2x2 (gender x athletic status) fixed effects factorial ANOVA revealed no sig diff among gps on the Beck Depression Inventory, the global severity index score on the Symptom Checklist-90-Revised, or the Hopelessness Scale.

284. OLSON, K.R. Leg length and distance of approach steps for the optimal soccerstyle placekick. MS in Physical Education, Exercise Science, 1992, 142 pp. (K.P. DePauw)

This investigation was conducted to determine the relationship between leg length and the biomechanical anal for the distance of walk back steps of the kicking motion in a soccerstyle placekick. The Ss were 94 placekickers at the HS, coll, or pro trainee level. The placekickers were placed into 1 of 4 gps depending on leg length and were filmed during their approach and kick swing. The placekickers had 3 kicks and were tested on (a) initial angle, (b) initial velocity, and (c) max distance. The approach and the kick swing phase were drawn out on a computer for anal and were compared by the K factor of the placekickers. The K factor was an efficiency decimal value formulated by the actual horizontal kick distance divided by the distance the ball would travel in a vacuum ($r=V^2 \sin 2\Theta/g$). T tests were conducted on (a) leg length and (b) level of participation, with trajectory, velocity, and distance. An ANOVA stat test also was run on the level of participation and leg length. The kick swings of 12 Ss were broken down by the use of the graphic computer for film anal. The figures were divided by the ranges that the Ss scored, based on the low (<.170), medium (.170-.225), and high (>.225) K factor scores. Recommendations for the approach distances were diff based on the leg length of the individual. Starting approach distances varied from 4 ft to 5 ft 3 in. from the football with the angle of approach and ball-foot contact not calibrated.

285. ORIGENES IV, M.M. Cardiorespiratory response to upright and aeroposture cycling. MS in Physical Education, 1991, 72 pp. (S. Blank)

This study compared the cardiorespiratory responses of 24 Ss during an incremental exercise test to exhaustion on a cycle ergometer in the upright (UC) and the aerocycling (AC) postures. Ss were moderately trained M 21-24 yrs of age and free of drugs and medication. None had a history of CV disease. Exercise began at a power output of 300 kpm·min^{-1}. Power output was increased 300 kpm·min^{-1} every 3 min until volitional exhaustion. Ventilatory, VO_2, HR, and BP responses were averaged each min. ANOVA for repeated meas revealed no sig diff in ventilatory pattern or timing, CV responses, and metabolic requirements between the UC and the AC during max and submax exercise.

286. POIROT, J.P. Person-environment interaction: Effects of student-faculty congruence on academic satisfaction and achievement of students. EdD in Educational Administration, 1992, 118 pp. (K.P DePauw)

This study investigated the relationship of the stdnt-faculty congruence on acd satisfaction and acd achievement of upper division undergrad majors within the Department of Physical Education, Sport and Leisure Studies (PESLS) at

Washington State Univ. 19 faculty members were grouped to form the "environment" and 76 stdnts represented 4 majors. All Ss were given the Vocational Preference Inventory (Holland, 1985) to determine the levels of congruence between the stdnts and the "environment." The stdnts were also given the Program Self-Assessment Service (Educational Testing Service, 1987) to establish their degree of acd satisfaction and their level of acd achievement (GPA). The PESLS environment was observed to be very diverse in nature. Exercise science majors had a sig closer level of congruence with the PESLS environment than the sport management majors. Both the sport management and PE majors had closer congruence with a national stdnt norm than the exercise science stdnts. Individuals were fairly satisfied with their choice of major and achieved moderately well in spite of low levels of congruence with the environment in which they were studying. No sig relation was found between either of the congruences and acd satisfaction or achievement.

287. QUINN BAKKE, P. Development and evaluation of an interpretive nineteenth century American children's games program: Knowledge and satisfaction attained through program participation. MS in Physical Education, 1991, 196 pp. (E. Udd)

The rationale for the development of this interpretive children's games prog was to allay the misconception that 19th century Americans had no time to involve themselves in leisure activities. A 1 1/2 hr prog was developed and presented to ele stdnts, univ stdnts, and senior adults. A knowledge test was given before and after the prog to determine the change in knowledge level. The participants were also asked to complete a shortened version of the Physical Activity Satisfaction Scale (Hupp, in press). The results indicate the interpretive games prog had a sig effect on knowledge gain of the Ss in the ele gp. The coll gp knowledge scores approached sig at the .05 level. All gps evaluated in the interpretive prog reported the experience was satisfying. Ele F scored sig higher satisfaction scores than did ele M. There was a low, positive r found between prog satisfaction and change in knowledge scores for the ele S gp.

288. SCHARNHORST, R.L. The effects of high and low intensity eccentric exercise on muscle soreness and strength. MS in Physical Education, 1991, 112 pp. (L.D. Bruya)

The problem was to examine the effects of 2 eccentric exercise protocols on muscle soreness and strength of the biceps brachii in 18 untrained coll-aged Ss. Each S performed an eccentric exercise protocol with each arm. One randomly assigned arm performed the high-intensity, low-volume workload and the other arm performed the low-intensity, high-volume workload. Muscle soreness and strength meas were assessed before exercise and at postexercise intervals of 0, 24, 48, 72, and 144 hrs. Muscle soreness was meas using a Likert

Scale, and strength performance characteristics were assessed using a Cybex Isokinetic Dynamometer. A repeated meas anal revealed no sig diff between the workouts on muscle soreness. However, sig diff in mean meas strength were seen between the 2 workouts at times 24 and 144 hrs postexercise ($p \leq 0.05$). Mean measured strength for the low-intensity, high-volume gp was greater than mean meas strength for the high-intensity, low-volume gp at each time period.

289. SCHWENDEL, P.J. Traditional baseball weight training versus power weight training: Effects on bat velocity. MS in Physical Education, 1991, 93 pp. (S. Adams)

The problem was to compare the effects of a traditional baseball wt training and a power wt training prog on bat velocity. Ss were 60 M and F coll stdnts ranging in age from 18 to 28 yrs old. Training prog exercises were the leg press, leg curl, leg extension, bench press, lat pulldown, military press, bicep curl, and tricep extension, performed on Universal wt machines. Initial and final bat velocities were meas for all 60 Ss, and Ss in the experimental gps were tested for a 1RM in the training prog exercises. The traditional gp (3x10) performed each eccentric contraction in 4 sec. The power gp executed each repetition in 1 sec and trained according to the principles of periodization. Both gps trained for 7 wks. Power trained M made greater sig improvements in bat velocity than any other gp. F made greater improvements in upper and lower body strength than M while traditional training and power training equally enhanced lower body strength across Ss.

290. SIPP, T.L. Effect of chronic ethanol consumption and moderate intensity endurance training on murine plasma corticosterone concentration. MS in Physical Education, 1992, 77 pp. (S. Blank)

The effects of chronic ethanol (20% w/v) consumption and moderate intensity endurance training on the physiological stress response, as indicated by increased plasma corticosterone concentration (PC), were monitored. FC57BL/6J mice (n=120) were assigned to one of 4 gps: sedentary, water-drinking (SED-H_2O); sedentary, ethanol-consuming (SED-ETOH); trained, water-drinking (TR-H_2O); and trained, ethanol-consuming (TR-ETOH). Mice ran on a treadmill at 12m/min, 8° incline, 60 min/day, 5 days/wk for 10 wks. Diurnal PC and blood ethanol concentration (BEC) were determined at wks 1, 2, 6, and 10 from retro-orbital blood samples taken at 7 pm, 1 am, 7 am, 1 pm (pre-exercise), and 2:30 p.m. (post-exercise). PC was not chronically elevated in SED-ETOH, TR-ETOH, or TR-H_2O gps as compared to SED-H_2O mice. However, PC increased 4-5 fold immediately after exercise but was similar to SED mice at recovery from exercise. PC was not correlated with BEC. Results indicate chronic exercise and continuous ethanol intake did not impose a chronic stress effect andtraining did not dampen exercise-induced increases in PC.

291. WU, Y. Role stress and secondary school teacher/coaches in the state of Washington. MS in Physical Education, 1991, 65 pp. (K.P. DePauw)

The problem was to investigate the role stress tchr/coaches experienced at HS in the state of Washington. A mail questionnaire was sent to 200 randomly selected Ss during the winter of 1990. 126 (63%) of the questionnaires were returned; 118 were usable. 60.2% of the respondents were M, 39.8% were F. The ages of the respondents ranged from 24 to 63 yrs, with ave of 36.5 for F and 41.9 for M. 108 (91.5%) described themselves as white American. A sig relationship was found between role stress and occupation. Tchr/coaches were more likely to experience role stress at a higher level resulting from the coaching role. Excessive time/energy demand was the single greatest source contributing to the role stress. Those who coached one team (team sport) were more likely to experience role stress at a higher level. To cope with the role stress, tchr/coaches were more likely to balance their commitment to both roles. In general, gender was not a factor contributing to the role stress.

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292. JOHNSON, J.R. A survey of division II athletic and physical education fiscal trends for the next twenty years. Doctorate, 1992.

The purpose was to determine what major financial problems may occur within Div II athletic and PE prog during the next 20 yrs. Financial problems and fiscal solutions were forecast by admin experts. A Modified Delphi Technique was utilized to obtain a consensus opinion from experts through a series of questionnaires with controlled feedback. The experts surveyed included Athletic Directors, PE chairs, and presidents at the Div II level who have at least 65 yrs of exp. The first questionnaire was mailed to 40 randomly selected experts. The first round of experts that responded and met the minimum 5 yrs exp criteria numbered 26. The response rate for the second and third questionnaire was 40 % of the first questionnaire or 16 respondents. The experts were asked to project future financial problems and possible fiscal solutions. They ranked 7 financial problems which included admin costs, competitive salaries equipment costs, new facility construction, old facility renovation, repairs and maintenance, and travel expenses. The impact and desirability of 8 fiscal solutions were forecast for each financial problem. The solutions included bond issues, government allocations, tuition, student assessment, alumni gifts, foundations, endowments, annual gifts, and corporate sponsorships. The greatest financial problem for athletics and PE will be new facility construction. 3 fiscal solutions (annual gifts, government allocations, and bond issues) were forecast in the high impact range regarding athletic financial problems and 3 (bond issues, government allocations, and tuition) fiscal solutions were forecast in the high

impact range regarding PE. 7 fiscal solution (alumni gifts, annual gifts, bond issues, corporate sponsorships, endowments, foundations, and government allocations) were forecast as highly desirable regarding athletic financial problems and 5 fiscal solutions (alumni gifts, bond issue, foundations, government allocations, and tuition) were forecast as highly desirable regarding PE.

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